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TUBERCULOSIS OF LUNGS AND BRONCHIAL LYMPH NODES *

EUGENE L. OPIE, M.D.

PHILADELPHIA

Discussion concerning tuberculosis in childhood cannot be limited to a consideration of manifest disease but must include all forms of partially concealed infection. Under the topics that have been assigned as a part of the symposium, I shall consider both latent and clinically recognizable disease.

INCIDENCE

Knowledge of the incidence of tuberculosis in infancy and early childhood is in large part based on mortality statistics which, in view of untrustworthy criteria for the diagnosis of tuberculosis in childhood, are notably uncertain. It is well known that the mortality rate from the disease begins to rise within several months after birth, and reaches a peak during the first year of life. A rapid fall begins during the second half of the first year, and from the end of the second to the fifteenth year the curve maintains a uniformly low level, but from adolescence through early adult life it rises continuously. The high death rate of early infancy apparently is due to two factors: (*a*) susceptibility of the infant, which has little resistance to the disease, presumably because it comes for the first time into contact with the micro-organism, and (*b*) exposure to massive infection when the infant is fed and tended by a tuberculous mother or lives in an environment heavily infected with the tubercle bacillus. Anatomic studies give the impression that the infant is more susceptible to the action of the tubercle bacillus than children who come into contact with the disease at a more advanced age, apparently for the first time, but information on which to base an exact opinion is not yet obtainable.

Since the tuberculin reaction is a fairly accurate index of the existence of tuberculous infection, it is possible to determine what part of those who are infected during infancy die from the disease. At one time it was widely believed that infection during infancy was invariably fatal, but figures which are now available indicate that from one-half to two-thirds of those who react with tuberculin during the first year of life die of tuberculosis. Among children in whom tuberculosis had been recognized during the first year of life, Hemplemann [1] found that 78.7 per cent died within a year following diagnosis. Nassau and Zweig [2] found that all of twenty children infected during the first three months of life died; of sixteen children infected during the second three months 87.5 per cent died, but of thirteen infected during the second half of the first year only 30.8 per cent died. The grave significance of a positive tuberculin test during infancy is sufficiently evident.

With increasing age throughout childhood the tendency of tuberculous lesions to undergo healing increases continuously. Autopsies performed on children who have died from all causes disclose tuberculous lesions of every grade of intensity from disseminated miliary tuberculosis to circumscribed encapsulated and calcified nodules in lungs and adjacent lymph nodes. The relative frequency of progressive fatal disease gradually diminishes after the first year, whereas lesions with evidence of healing indicated histologically by fibrosis progressively increase. When adult life is reached, a large part of these obsolescent lesions have been converted into encapsulated calcified nodules which are present throughout life as evidence of preexisting infection.

The attempt has been made by Dr. Aronson and myself [3] to determine whether the caseous and encapsulated or calcified nodules which persist into adult life contain living tubercle bacilli, and we have found that the micro-organism has disappeared from almost all if not all of these foci. In the apical lesions of adults, on the contrary, living tubercle bacilli persist even though healing is far advanced. The evidence we have obtained supports the view that adult tuberculosis is not derived from the childhood type of infection, but is an exogenous infection.

During adolescence and in adults, the tubercle bacillus finds favorable conditions for multiplication only in the apex of the lungs.

How has the decrease in the general death rate from tuberculosis which has occurred in recent years affected mortality at different ages? In the decade from 1913 to 1923, the reduction in the total death rate in this country was 38 per cent, and the greatest reduction occurred in young children, the decrease among children from birth up to 5 years of age being 51 per cent. For children from 5 up to 15 years, when mortality is lowest, the decrease was less than that at any other age period, namely, 18 per cent; but in the period from 15 up to 25 years, the decline was 41 per cent. It is noteworthy that corresponding figures for England and Wales are the reverse of those for this country. Decline of death rate has been least in early

* From the Henry Phipps Institute, University of Pennsylvania School of Medicine.

* Read before the Section on Diseases of Children at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

1. Hemplemann, T. C.: Am. Rev. Tuberc. **1**: 99 (April) 1917.

2. Nassau, E., and Zweig, H.: Ztschr. f. Kinderh. **39**: 484, 1925.

3. Opie, E. L., and Aronson, J. D.: Tubercle Bacilli in Latent Tuberculous Lesions and in Lung Tissue Without Tuberculous Lesions, Am. Arch. Path. & Lab. Med. **4**: 1 (July) 1927.

childhood and greatest in the period from 15 to 25 years of age.

With present knowledge, it is not possible to determine whether, with decline in the mortality from tuberculosis, there is less widespread latent infection. In rural communities, such as those of Minnesota, studied by Slater,[4] the incidence of infection is very low, but in the larger cities, like Philadelphia, 80 per cent of children are infected before the twelfth year, and approximately all have been infected at the age of 18 years. It is probable that under modern conditions of living a smaller part of infected children develop fatal tuberculosis.

Of very great importance from many points of view is the consideration of mortality from tuberculosis in families exposed to contact with the disease. Information concerning the subject is difficult to obtain and of uncertain value. Statistics supporting the efficacy of Calmette's protective virus, which he designates B C G, have been obtained by comparing the mortality of treated infants exposed to open tuberculosis with the mortality of those who have not received the virus. Calmette[5] states that 24 per cent of 1,364 infants of families with tuberculosis died presumably of the disease; governmental statistics collected in Paris give the mortality under the same conditions as 32.6 per cent, and figures collected by others indicate an even higher death rate. Röpke[6] has studied the fate of thirty-six infants exposed to open tuberculosis during the first year of life, and has found that six (16.7 per cent) died from the disease.

SOURCE OF INFECTION

Studies[7] which have been in progress at the Henry Phipps Institute during the last four years have shown that there is no line of separation between latent infection recognized by the tuberculin test and by roentgenologic examination, but unassociated with significant symptoms or physical signs, on the one hand, and manifest or clinical tuberculosis recognized by the usual diagnostic criteria, on the other hand. No satisfactory study of the contagion of tuberculosis is possible unless both forms of infection are taken into consideration. If families in which some member suffers from open tuberculosis are compared with those in which there is no contact with the disease, the spread of infection is demonstrated by the frequency and severity of latent lesions and by the high incidence of manifest disease. In families with open tuberculosis, the tuberculin reaction shows that 80 per cent of children are infected before the fifth year, whereas in families with no contact with tuberculosis, only about 20 per cent are infected. In contact families this high incidence of sensitivity is maintained as age increases, whereas in noncontact families children in the first decade of life react much less frequently, though the incidence of positive reactions increases with age. The greater severity of latent infections in contact families is well shown by roentgenologic examinations, for in families exposed to tuberculosis, these lesions in a high percentage of cases are so conspicuous that they are readily identified in roentgenograms. In children of contact families, on the contrary, lesions are less frequently found and those which are identified in plates are usually insignificant.

In a group of families in which one parent suffered from open tuberculosis, small partially calcified nodules were found in the lung fields in 30 per cent of 124 children, and in noncontact families similar nodules were found in 16.8 per cent of eighty-nine children. Tuberculosis of the tracheobronchial lymph nodes, usually associated with recognizable lesions in the peripheral lung field, represents a much more extensive infection and is not infrequently followed or accompanied by manifest or clinical disease. In families with open tuberculosis in a parent, this lesion, unaccompanied by manifest disease, has been found in 22.7 per cent of children, and in families with no contact, in 4.5 per cent. Latent apical tuberculosis of adolescent children, which we have repeatedly followed until it has become manifest phthisis, has been present in the contact group in 2.4 per cent and in no instance in the noncontact group. Finally, manifest tuberculosis recognized by the usual methods of clinical diagnosis has been present in children exposed to contact in 9 per cent of cases. These figures were obtained one year ago, and subsequent observations have materially increased the percentages in the group of contact families.

Observations which include a consideration of both latent and manifest or clinical tuberculosis emphasize the occurence of obvious contagion within the family and show that there is a frequent transition, especially during the second decade of childhood, from latent to manifest disease. The lesions depicted in roentgenograms made during life reproduce the characters of lesions found in the lungs after death at different age periods and, in association with bacteriologic studies of lesions representing infection in childhood and in adult life, support the view that the apical infection of adolescence and of adult life is an exogenous reinfection and not the continuation of a first infection acquired in early childhood.

Tuberculosis of infancy is, with very few exceptions, acquired within the family, and doubtless the same statement is applicable to tuberculosis of early childhood, but as age increases the opportunity of acquiring the disease outside of the home increases. Among children in whose families there is no tuberculosis, the incidence of the tuberculin reaction increases gradually from zero at infancy to almost 100 per cent at the age of 18 years. The possibility suggests itself that transmission occurs in part, at least, within schools where, during the ages from 6 to 16 years, children are in intimate contact with one another. Spread of disease within families indicates that infection may spread within schools whenever open tuberculosis makes its appearance, and a survey of school children carried on under the direction of the Henry Phipps Institute indicates that even under good conditions open tuberculosis may make its appearance and remain undiscovered.

Our studies of families have shown the close correlation between evident contagion and the demonstration of tubercle bacilli by ordinary methods of examination in some member of the family. With the tuberculosis of early childhood represented by lesions of first infection, expectoration is scant; the disease when recognizable by symptoms or physical signs usually pursues a rapid course, and tubercle bacilli are found in the sputum only in the terminal stage. The apical lesion of reinfection, on the contrary, pursues a chronic course, is more frequently accompanied by cavity formation, both in adolescent and adult life, and permits

4. Slater, S. A.: Am. Rev. Tuberc. **10**: 299 (Nov.) 1924.
5. Calmette, A.: Ann. d. l'Inst. Pasteur **41**: 201 (March) 1927.
6. Röpke, M.: Beitr. z. Klin. d. Tuberk. **54**: 252, 1923.
7. Opie, E. L., and McPhedran, F. M.: Am. Rev. Tuberc. **14**: 347 (Oct.) 1926.

the dissemination of tubercle bacilli in great number. The chief sources of infection are the lesions of reinfection which occur in adolescent children and in adults; lesions of first infection in children have a relatively insignificant part in the spread of tuberculosis.

The bacteriologic study which we have made of latent pulmonary lesions has shown that they are associated with the human type of bacillus, with few if any exceptions. These observations are in accord with those made on manifest pulmonary disease. Milk is doubtless an important source of tuberculosis which enters the body by way of the gastro-intestinal tract and affects cervical and mesenteric lymph nodes. The bovine type of tubercle bacillus is often demonstrably associated with tuberculosis having its origin in the gastro-intestinal tract, but as a source of tuberculosis of lung or tracheobronchial lymph nodes it is practically negligible save when lesions of these organs are part of a general dissemination throughout the body.

METHOD OF INFECTION

It seems undesirable to discuss at length the well known literature concerning the mode of transfer of tubercle bacilli from infected individuals to others. Prolonged and intimate contact with open tuberculosis is essential. In instances in which tuberculosis of the tracheobronchial lymph nodes has been recognized, the average duration of exposure to open tuberculosis has been four years, whereas with latent apical disease, including that of adolescent children, the average period of exposure has been seven years. These figures should be regarded as tentative, and certainly do not represent the minimal time required for infection.

Three possible modes of infection have been widely discussed; namely, by dry dust, by moist droplets and by contamination of food or other objects that enter the mouth. Since living tubercle bacilli are killed by drying and light, dust is no longer regarded as the chief source of infection. At the Henry Phipps Institute, we have collected dust from the air in the home of patients with open tuberculosis, but have almost invariably failed to obtain tubercle bacilli by animal inoculation. Available evidence favors the view that tubercle bacilli may be transmitted by moist droplets thrown out by coughing. Anatomic observations indicate that the tuberculosis of childhood is in great part aerogenous and has its primary localization in the lungs. Pulmonary tuberculosis of children is almost invariably caused by the human bacillus.

During the period of infancy and early childhood, opportunity for transfer of tubercle bacilli by direct contact with the tuberculous mother or nurse is obvious. The micro-organism often enters by way of the gastro-intestinal tract, for it is noteworthy that nearly half of the instances of abdominal tuberculosis in children under 5 years of age have been caused by the human type.

It is very difficult to determine how frequently tuberculosis of children is caused by the bovine bacillus ingested with milk. Cobbett [8] estimates that approximately 6 per cent of all deaths from tuberculosis are caused by the bovine bacillus.

HEREDITY

Hereditary transmission of tuberculous infection from parent to child may be regarded as a negligible factor in the spread of the disease. Transmission from mother to fetus by way of the placenta has been described in a small number of well authenticated instances, and has occasionally caused fatal disseminated tuberculosis in early infancy; but this event occurs so seldom that congenital transmission of tuberculosis has been regarded as insignificant. Nevertheless, the opinion that an ultramicroscopic form of the tubercle bacillus which can pass through a porcelain filter penetrates the placenta and infects the fetus in utero has been advocated by Calmette and other French observers. The existence of these filtrable forms of the micro-organism is still uncertain.

Although the hereditary transmission of tuberculosis has received little credence, many support the opinon that predisposition to the disease is transmitted from tuberculous parents to their offspring. Observations made on human beings are complicated by so many factors that their interpretation is difficult or impossible. Experimental studies made by Lewis [9] are free from this objection. In strains of guinea-pigs that were primarily produced by close inbreeding, wide differences in susceptibility to tuberculosis were demonstrable, and these differences were maintained through many generations.

Racial susceptibility to tuberculosis has been regarded as hereditary. The high mortality from tuberculosis among American negroes, some believe, may be equally well explained by the lack of protective infection during childhood. Others maintain that it is better explained by unfavorable environment. Carter [10] has found that the mulatto recovers from tuberculosis more frequently than the negro but less frequently than white patients, and he reaches the conclusion that susceptibility is an inherited character. The observation, however, may be explained otherwise.

Statistics which indicate that children of tuberculous parents react to tuberculin less frequently than those whose parents have been free from the disease have been published by Drolet.[11] Furthermore, he cites figures to show that tuberculous children of tuberculous patients show more resistance to the disease than tuberculous individuals whose parents have not had tuberculosis. He suggests that there is an inherited resistance to the disease. His observations on the tuberculin reaction are contrary to those of observers who have compared families in contact with open tuberculosis and those who were not exposed. If tuberculosis in children of tuberculous parents has a greater tendency to heal than in children whose parents are not tuberculous, healing may be explained by acquired as well as by inherited resistance. There is, indeed, very little convincing evidence for or against the opinion that inherited susceptibility on the one hand or inherited resistance on the other modifies the progress of tuberculosis in human beings.

RESISTANCE

Certain phases of immunity against tuberculosis lend themselves to discussion from which, with present knowledge, no trustworthy conclusion is possible. The relationship of hypersusceptibility to tuberculin and other products of the tubercle bacillus on the one hand and to immunity against the micro-organism and its products on the other is not clear. Analogy with hypersusceptibility to proteins,[12] which is more readily studied, indicates that the tuberculin reaction is an

8. Cobbett: The Causes of Tuberculosis, New York, G. P. Putnam's Sons, 1917.

9. Lewis, P. A.: Eugenics, Genetics and the Family **1**: 178, 1923.
10. Carter, H. G.: Am. Rev. Tuberc. **13**: 373 (April) 1926.
11. Droplet, G. J.: Am. Rev. Tuberc. **10**: 280 (Nov.) 1924.
12. Opie, E. L.: J. Immunol. **8**: 55 (Jan.) 1923; **9**: 259 (July) 1924.

intensified inflammatory reaction exhibited by the immunized animal, and although it suggests increased susceptibility to injury, brings about local fixation, as Krause and Willis [13] have shown, and partial or complete destruction of an injurious agent, and is in this sense beneficial.

Well known experiments on animals, and especially those which have been performed on cattle in the attempt to protect them from spontaneous tuberculosis, have shown that a first infection confers immunity against reinfection. Immunity heretofore produced has had several inconvenient characters: (*a*) It is relatively ineffective and is readily overcome by increasing the number of micro-organisms used for reinfection. (*b*) Immunity following the injection of virulent micro-organisms is more effective than that caused by attenuated strains. (*c*) Immunity is transient and disappears after the first infection has completely healed. It is possible that new observations may modify some or all of these statements.

The anatomic evidence already briefly cited shows that a second infection has its origin in the apex of the lung, remains localized in the lung itself, pursues a chronic course, and in most instances never becomes manifest to the physician or his patient. The lesion of reinfection has the characters of tuberculosis in an individual rendered resistant by a first infection. When first infection occurs early, a superimposed infection with the characters of adult phthisis may make its appearance during childhood. Holt states that the adult type of tuberculosis may be seen after the seventh or eighth year. It occurs with increasing frequency as age increases during the second decade of life.

In adolescent children of families in which some member suffers from open tuberculosis, Dr. McPhedran and I have repeatedly seen apical tuberculosis in association with clearly defined tuberculosis of the tracheobronchial lymph nodes. Tracheobronchial tuberculosis, together with a small peripheral nodule, may be clearly defined on one side, whereas an apical lesion may be seen in the opposite lung. Anatomic studies do not furnish any support for the opinion that the apical lesion has spread from the site of the first infection. It is best explained, I believe, as a superimposed infection occurring in an adolescent child exposed to tubercle bacilli in great number during a long period. Resistance conferred by a first infection has been insufficient to prevent reinfection in the presence of massive infection. Cases of this type give little support to the hope that any form of artificial inoculation will confer trustworthy protection against infection from open tuberculosis. Furthermore, the existence of tuberculous infection indicated by the tuberculin reaction does not furnish evidence that a child has immunity sufficient to resist a new infection should it be exposed to contact with open tuberculosis.

ENVIRONMENT

Unfavorable environment influences the occurrence of tuberculosis by increasing exposure to the tubercle bacillus or by impairing health and diminishing resistance to the micro-organism. Overcrowding of persons exposed to open tuberculosis obviously increases the intimacy of contact. Experimental studies on the spontaneous spread of tuberculosis among guinea-pigs, made by Perla [14] at the Henry Phipps Institute, have shown that overcrowding of cages promotes the transfer of the disease from infected to healthy animals. Efforts to prevent tuberculosis are in large part concerned with measures of cleanliness, directed to prevent the scattering of tubercle bacilli by tuberculous patients, or with efforts to segregate those who are disseminating micro-organisms. Our study of the contagion of tuberculosis in families has shown that the usual method of sputum examination is an effective means of discovering those who are a source of danger to others. In clinics organized for the control of tuberculosis, frequently repeated sputum examination is the best guide to prophylactic care of families.

Tuberculosis is conspicuously, though by no means exclusively, a disease of poverty. Malnutrition and fatigue are regarded as factors favoring its occurrence. There is no doubt that they act by accelerating the progress of preexisting infection. Anatomic evidence furnishes abundant proof that the tuberculosis of the healthy should not be regarded as trivial infection of interest only to the pathologist. Lesions of the lung and the tracheobronchial lymph nodes which have remained concealed are often more extensive than those which by penetration into a blood vessel or other apparently fortuitous circumstance have caused general dissemination, perhaps tuberculous meningitis and death. Furthermore, as Ophüls [15] has recently demonstrated very clearly, a hidden focus in the lungs and adjacent lymph nodes may be the source of tuberculosis of the bones, genito-urinary tract, or suprarenal glands. Our attention is fixed on tuberculosis which is recognizable by the usual clinical methods, and we ignore the existence of much more widespread potential disease.

CONCLUSIONS

The graver forms of latent infection are readily recognized by roentgenologic examination. Hidden tuberculosis of the tracheobronchial lymph nodes, widespread though concealed infiltration of the lung substance, and latent apical lesions of adolescent children, can be revealed by appropriate methods, and the tuberculin reaction may be used with a considerable degree of accuracy to determine whether they are progressive or stationary.

Prevention of tuberculosis in children may be guided by an exact knowledge of their exposure to the tubercle bacillus, and by the progress of concealed disease readily determined by appropriate methods.

Children in whom advanced infection is recognizable, even though they have no symptoms or physical signs of tuberculosis, should be placed under conditions that will retard the further progress of the disease.

13. Krause, A. K., and Willis, H. S.: Tubercle **6**: 438 (June) 1925. Willis, H. S.: Am. Rev. Tuberc. **11**: 427, 439 (July) 1925.
14. Perla, D.: J. Exper. Med. **43**: 209 (Feb.) 1927.
15. Stanford University Publications, M. Sciences **1**, number 3.

Much Ill Health Attributed to Poor Posture.—There is a present-day tendency to "slouch" or "slump" especially among young people. Rounded shoulders and relaxed abdominal walls are often associated with serious nervous maladies. Prolapse or "falling" of the stomach, abdominal organs or pelvic organs, and constipation also accompany faulty posture. The normal relations of organs are distributed and the proper circulation of the blood is prevented by faulty habits of walking, standing and sitting. An erect posture, whether standing or sitting, deep breathing and exercises to improve the tone of the abdominal muscles will prevent much ill health. In standing, the heels should be well apart and the toes pointed straight ahead, chin in, chest arched forward, abdomen in. In sitting, the easiest position is with feet (not legs) crossed and the body resting on the full length of the thighs.—Keep-Well Leaflets from the Life Extension Institute.

CLINICAL DIAGNOSIS OF PULMONARY AND BRONCHIAL GLAND TUBERCULOSIS *

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It is well known that among adults evidence of previous tuberculous infection is almost universal, and that in a large proportion of such individuals the original infection occurred during the period of childhood. In most instances, however, the changes produced in the body by such infections are so insignificant as to escape detection at the time of their occurrence. Such early infections are most often found in the lungs, although occasionally they may occur in the gastrointestinal tract or elsewhere in the body. We are, however, at present concerned only with the respiratory form of the disease, and after the initial focus is established in the lung, should there be progression of the lesion, we next find involvement of the tracheobronchial group of glands which drain this area. Finally, by extension from the primary lung focus or from the lymphatic glands at the root of the lung, further involvement of the lung parenchyma or pleura may result. It will be convenient, therefore, in considering the clinical diagnosis of tuberculosis, to discuss these three stages of the disease and the various signs and symptoms characteristic of each.

THREE STAGES OF DISEASE

First Stage.—Tubercle bacilli are inhaled, lodge in the lung parenchyma, and in the struggle of the tissues to overcome the invaders a zone of reaction is established which becomes the "primary focus." Usually, however, the lesion is so small that no local evidence of its presence, such as râles or dulness, can be elicited on physical examination. Within the next few weeks the tuberculin tests (Pirquet, intradermal) become positive, and in a large proportion of cases, especially among the older children, complement fixing bodies appear in the blood stream. Subjective symptoms, if they occur at all, are similar to those found in a somewhat later stage of the disease, but usually so mild and apparently insignificant as to occasion little interest or anxiety. The first stage of the disease, then, may be briefly described as being characterized by the presence in the lungs of a pathologically active focus of tuberculosis without the occurrence of the clinical signs of activity of the lesion.

Second Stage.—As the tuberculous infection travels from the primary focus in the lung parenchyma to the regionary lymph nodes at the hilum, the corresponding tracheobronchial glands become swollen and ultimately may produce a group of characteristic symptoms. As the result of the pressure of the large packet of glands on the trachea and bronchus, or perhaps in part because of the irritation of the recurrent laryngeal and pneumogastric nerves in this region, certain objective signs often give a clue to the adenopathy. One of these, especially common in young children, is a high-pitched, ringing, metallic cough which may at times be paroxysmal in character, suggesting pertussis without the whoop. Another symptom, also much more frequent in infancy, is an expiratory wheeze or stridor heard usually when the infant is quiet and respirations are not forced. Should the mass of glands be extremely large, the bronchial or tracheal lumen may be so far encroached on as to cause both inspiratory and expiratory stridor with sufficient dyspnea to simulate croup, asthma, or enlargement of the thymus. Moreover, in rare instances sufficient pressure may be exerted on the superior vena cava to cause cyanosis or even edema of the face.

Valuable information concerning the tracheobronchial glands may be gained at times by means of physical examination, search being made especially for d'Espine's sign and impairment of the percussion note over or near the upper portion of the sternum and to the right or left of the spine. In d'Espine's sign, auscultation over the spinous processes of the dorsal vertebrae reveals the transmission of the whispered voice below the level of the tracheal bifurcation. It is to be considered positive only when there is maintenance of the same tracheal timbre to the voice as is heard in auscultation directly over the trachea. This phenomenon depends on the improved conduction of the sound waves that results when a solid medium, such as a packet of enlarged glands, is interposed between the trachea and the spinal vertebrae. In interpreting the sign, however, it is important to remember that the level of the bifurcation of the bronchi differs with the age of the child. For example, in infants and young children it is rarely lower than the seventh cervical spine, whereas at 7 or 8 years it may reach the second or third dorsal vertebra, and at 11 or 12 years, the third or fourth dorsal spine.

Should one of the primary bronchi be much compressed, the breath sounds may be feeble or even absent over an entire lung or lobe, the observations resembling those when there is a foreign body in the bronchus. Indeed, rupture of a caseous lymph node into the trachea or bronchus may cause severe asphyxia and death within a few minutes of its occurrence.

On percussion, enlargement of the mediastinal glands not infrequently produces a slight impairment of the note over the upper portion of the sternum, or to the right or left of this region. Similarly, slight dulness can often be detected posteriorly in the interscapular space. In this connection it may be observed that paravertebral dulness can best be demonstrated by light percussion proceeding from below upward, since in this way the contrast between the normal pulmonary resonance and the impaired note produced by the enlarged glands is greater than when percussing from above downward over the thick back muscles.

Among other less valuable signs occasionally observed are enlargement of the superficial veins of the upper chest and back, and Eustace Smith's sign, in which a venous hum is heard over the upper sternum when the head is held sharply retracted. Even a positive d'Espine sign, however, is not conclusive evidence of the presence of enlarged glands, nor does a negative d'Espine sign prove their absence, since the roentgenographic or autopsy observations do not always correspond with the physical signs; but if the examination is carefully made by one familiar with the sign, it will be found a valuable aid in arriving at the proper conclusions.

It is true that some degree of enlargement of the tracheobronchial glands can be produced by causes other than tuberculosis. For instance, repeated respiratory infections, such as bronchitis, pneumonia, whooping cough, influenza, or infections of the paranasal

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* Read before the Section on Diseases of Children at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

sinuses, may produce a definite increase in the size of the bronchial nodes. But, except in the case of Hodgkin's disease, intrathoracic tumors and certain cases of leukemia, all relatively rare diseases, any marked enlargement of the tracheobronchial glands is almost invariably due to tuberculosis.

In addition to the physical observations mentioned, children with hilum tuberculosis usually give a rather characteristic anamnesis.[1] There is a history of frequent coughs and colds, with or without known exposure to tuberculosis; attacks of unexplained fever, often with afternoon elevations; and, in the severer cases, anorexia, loss of weight and asthenia. It must be emphasized, however, that many children with well marked hilum tuberculosis have an excellent color, appetite and good nutrition, and do not complain of any asthenia or malaise whatever.

It is obvious from this description that sputum examinations in this type of case rarely yield positive results; but valuable confirmatory evidence may be obtained from the tuberculin and complement fixation tests, as well as by means of the roentgen ray.

Third Stage.—In this phase of the disease there occurs a more or less widespread dissemination of the tuberculous infection throughout the lung parenchyma, and therefore the pathologic and clinical pictures are extremely diversified. It must be remembered that infants have very little resistance to the tubercle bacillus and in consequence there is usually a rapid extension of the pathologic process and a much greater tendency to disseminated and miliary tuberculosis than at subsequent age periods. The symptoms of miliary tuberculosis are not at all characteristic, and its presence is usually not suspected until revealed by the roentgen ray or autopsy. Indeed, tuberculosis in infancy is so insidious in onset and may be so obscure and indefinite in its course that it should be made an invariable rule to search for evidences of this infection whenever a properly fed infant fails to gain in weight, whether or not there are more suggestive symptoms present. This is all the more important since cough is often insignificant and fever may be absent, or very slight, until the final weeks of the disease.

Moreover, in childhood tuberculosis, except in older children, there is much less tendency to the chronic fibrous and interstitial changes so characteristic of the disease in adults. And despite the fact that the upper lobes are more often affected than the lower ones, the lesion is more apt to occur in the middle or lower portions than in the apex. Frequently there is a direct extension of the tuberculous process from the tracheobronchial glands to the structures about the hilum of the lung, but this is usually recognizable during life only by means of roentgenographic examination.

Next in point of frequency among young children stands tuberculous bronchopneumonia, often indistinguishable in the early stages from pneumonia due to other organisms. However, it is characteristic of tuberculosis that the physical signs may indicate extensive pulmonary involvement and the temperature remain relatively low. Leukocytosis, too, is less frequent and rarely as high as in pneumonia. In children past the seventh or eighth year the disease tends to resemble more nearly the type seen in adults.

If the pulmonary involvement is at all extensive, the process usually extends to the pleura, but effusions large enough to be recognizable clinically are rare in childhood, and pleuritic pain very infrequent. Despite this fact, however, serous effusions into the pleural cavity, especially if hemorrhagic, and not due to cardiac or renal disease, are always to be considered as tuberculous until proved otherwise, and some of the suspected material should be injected into guinea-pigs to aid in determining the etiologic factor in its production. Cavities may be found at autopsy even in infants, but they are usually small and deeply situated, so that they are quite likely to be overlooked during life.

EPITUBERCULOSIS

In addition to the more or less well known types of childhood tuberculosis described, one other form of the disease deserves especial mention. This is the type sometimes referred to as "epituberculosis," [2] characterized by the occurrence of an extensive pneumonic consolidation in a child with tuberculous tracheobronchial glands or other relatively mild manifestations of the disease. Although the consolidation may involve an entire lobe or more of the lung, the constitutional symptoms are very slight and bacilli are not found in the sputum. After a period of weeks or months, resolution slowly occurs, the signs of consolidation disappear, and the only evidence of the process that remains is the infiltration about the hilum, demonstrable in the roentgenogram.

DIAGNOSIS

The symptoms produced by pulmonary tuberculosis depend to a large extent on the size, position and character of the lesion. The two that are most commonly found are cough and fever. The temperature elevations are apt to be higher in the afternoon than in the morning, but frequently not at all in keeping with the severity of the pulmonary condition. As is the case with children suffering from hilum tuberculosis, often there is a history of previous attacks of unexplained fever or of repeated coughs and colds during the winter months. In the early stages of tuberculosis the nutrition suffers very little, but as the disease progresses there occurs loss of weight, asthenia, and more or less anemia. Night sweats, which form such a prominent symptom of the disease in adults, are usually entirely absent in children. Hemoptysis also is very rare in children, but spontaneous pneumothorax is somewhat more frequently seen, ordinarily as a complication of a caseous pneumonia. In protracted cases, slight clubbing of the fingers may occur, although this anomaly is much more frequently associated with other diseases, notably congenital malformation of the heart. An interesting complication occasionally seen is the occurrence of more or less extensive subcutaneous emphysema, resulting from the rupture of an alveolus in the lung and infiltration of air along the mediastinal structures into the subcutaneous spaces.

Aside from the physical signs referable to enlargement of the bronchial glands, one of the most frequent and relatively early conditions is a localized bronchitis; that is, a collection of moist râles heard always in the same place. A common site for their occurrence is anteriorly near one of the nipples or posteriorly over the upper part of the lower lobes. Auscultation may also reveal prolonged expiration, increased voice sounds, especially of the whispered voice, harsh breathing, or bronchovesicular and tubular breath sounds, depending on the extent and situation of the consolidated area.

1. Cooke, J. V., and Hempelmann, T. C.: Masked Juvenile Tuberculosis, Am. Rev. Tuberc. 4: 660 (Nov.) 1920.

2. Eliasberg, H., and Neuland, W.: Zur Klinik der epituberkulösen und gelatinösen Infiltration der kindlichen Lunge, Jahrb. f. Kinderk. 94: 102, 1921.

Occasionally valuable information may be obtained by means of "tidal percussion"; that is, percussing the lower borders of the lung during normal breathing and again during forced inspiration, when the lower border of the lung resonance normally moves perceptibly downward.

When, during childhood, the presence of tuberculosis is suspected because of the history and physical observations, the first step in establishing a definite diagnosis should be to perform one of the tuberculin tests, thereby proving that the child has or has not been infected with the tubercle bacillus. The Pirquet reaction commends itself for routine work because of its simplicity, but it is extremely important that each new batch of tuberculin be tested on known tuberculous individuals to determine the activity of the product. The reaction should be read in twenty-four and forty-eight hours, and, if negative, repeated in eight days. Using tuberculin made from both human and bovine tubercle bacilli probably results in a slight increase in the number of positive reactions, although often there will be no difference in the two. The intradermal test, 0.1 mg. of tuberculin being injected, is more sensitive than the Pirquet, but the diluted solution does not keep well and greater skill is required in performing the test. Finally, should these reactions be negative, some few children will be found to give a local or focal reaction to the subcutaneous injection of larger amounts, such as 0.5, 1, or even 5 or 10 mg. As a rule, however, the possible severity of local, focal and general reactions makes it unwise to inject tuberculin subcutaneously for diagnostic purposes unless the Pirquet and intradermal tests are negative.

There is a widespread impression that the skin tuberculin tests are usually negative in children with miliary or meningeal tuberculosis, and in those suffering from severe malnutrition. In my experience, this has not been the case, the intradermal and Pirquet tests usually being positive in all three of such types of infection even two or three days before death.

Next, a careful record of the temperature should be made, and the physical examination checked by means of roentgenographic studies. Stereoscopic films are always to be preferred to the flat plate, and by skilful technic may often be obtained even in young children. In some instances fluoroscopic examination may yield information not obtainable in any other way. Should the tuberculous process involve the lung parenchyma, a careful search should be made for tubercle bacilli in the sputum. Expectoration, however, rarely is seen in children under 5 or 6 years, the sputum being coughed up and promptly swallowed. If, however, the mouth is held open and coughing provoked by irritating the pharynx with a swab, the plug of mucus may be seen to come up into the throat, where it is caught on the swab and examined for bacilli in the ordinary way. This will usually be found more satisfactory than examining the stomach contents or feces for the organisms.

Finally, much important information about the status of a tuberculous lesion can often be obtained by means of the complement fixation test. Although this reaction has never been accorded its full deserts, when properly performed it yields in older children results in tuberculosis only slightly less valuable than does the Wassermann reaction in syphilis. At the St. Louis Children's Hospital, complement fixation tests for tuberculosis have now been performed on several thousand children,[3] and in those with manifest tuberculosis as well as in the group with masked juvenile tuberculosis (the latter including most of the cases of hilum infiltration) the results were strikingly constant: in infants under 1 year of age, no positive fixation tests were obtained even though the child had an obviously active tuberculosis. During the second year of life the test was positive in only two fifths of the cases. But from the third to the sixth year the percentage of positive reactions rose to 50, and with each succeeding year it increased rapidly so that between 9 and 15 years of age 82 per cent of children with active tuberculosis gave a positive fixation test. Although a positive reaction can probably be produced by a pathologically active focus of tuberculosis irrespective of whether or not signs of clinical activity can be detected on physical examination, the knowledge that such a focus exists may be invaluable in determining the status of a doubtful case. For it is obvious that the diagnosis of pulmonary tuberculosis cannot be made by the complement fixation and tuberculin tests alone, nor by the roentgen ray alone, nor by the physical examination alone; unless tubercle bacilli are found in the sputum, the diagnosis must depend not on any one of these points, but rather on a consideration and review of all the observations.

Metropolitan Building.

TUBERCULIN AND SERUM DIAGNOSIS OF PULMONARY AND BRONCHIAL GLAND TUBERCULOSIS *

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Robert Koch,[1] in his first article on tuberculin, noted the diagnostic possibilities of this substance. He was, however, chiefly interested in its therapeutic aspects, and although he described both the local and the constitutional reactions to injections, the widespread and harmless application of tuberculin as a diagnostic agent was not appreciated until Pirquet,[2] in 1907, brought forth the now familiar skin test.

Koch originally prepared tuberculin by concentrating an old glycerin broth culture of tubercle bacilli over steam and filtering it through a porcelain filter. This preparation has always been designated "Koch's old tuberculin" (O. T.).

Of the many modifications of old tuberculin that have been proposed, none appear to have any striking points of superiority, and therefore the original product is still almost uniformly the one of choice. Two recent reports, however, should be mentioned. The first is concerning a protein derived from tubercle bacilli. This was reported by Toenniessen[3] in 1922, and has been given the name Tebe protin. It is believed to be less toxic than old tuberculin, and according to

3. Cooke, J. V.: Complement Fixation for Tuberculosis in Children, Am. J. Dis. Child. **21**: 78 (Jan.) 1921. Cooke and Hempelmann (footnote 1).

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* Read before the Section on Diseases of Children at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

1. Koch, Robert: Deutsche med. Wchnschr. **16**: 1029, 1890; M. News, Philadelphia **57**: 521, 1890.

2. Pirquet, C. E.: Demonstration zur Tuberkulin diagnose durch Hautimpfung, Berl. klin. Wchnschr. **44**: 699 (June 3) 1907.

3. Toenniessen, E.: Protein from Tubercle Bacilli in the Diagnosis of Tuberculosis, München. med. Wchnschr. **69**: 957 (June 30) 1922.

Rominger and Rupprecht [4] it is of considerable value in the detection of active cases. The second report is by Eberson,[5] and appeared in 1925. Eberson isolated from a nonprotein substrate of tuberculin, by three different methods, substances which he believes contain the active principle of tuberculin. His experiments showed that these substances were more sensitive than old tuberculin for the detection of early cases of tuberculosis, and furthermore he was able by injecting guinea-pigs with these substances to sensitize their tissues against tuberculin.

It is not at present possible to form a critical opinion concerning these products.

The skin reaction to tuberculin is of an allergic nature, and occurs only in individuals who have become sensitized. Sensitization always occurs in those infected with tubercle bacilli. Until the reports of Eberson appeared, sensitization of the skin had never been accomplished by the injection of tuberculin or any of its derivatives, although reactions of an anaphylactic nature had been observed after second or subsequent injections. For being the first to produce a positive tuberculin reaction by any other method than by actual infection, credit is generally given to Baldwin.[6] He accomplished this in 1911 by the injection of killed tubercle bacilli. Verification of this work was reported by Zinsser and Petroff [7] in 1924.

According to various observers, the skin in children first shows a response to tuberculin in from three weeks to three months following infection. In artificially infected guinea-pigs, the reaction appears in about two weeks following inoculation. There is a general belief that the tuberculin test, once positive, remains so throughout the life of the individual. The only two exceptions to this are reported by Austrian [8] and by Krause.[9] Austrian observed ten children in whom Pirquet tests were positive in 1915 and negative in 1920. In seven of these, tests were still negative in 1923. Krause observed a boy in whom the skin was extremely sensitive for a number of years but who for eight successive years had shown a negative reaction to the Pirquet test. Krause believes that the disappearance of the skin test is not uncommon, but that observations on groups of children over long periods have not been carried out.

METHODS OF PERFORMING THE TUBERCULIN TEST

Of the various methods of performing the test, the following have been most commonly employed:

The Cutaneous Method of Pirquet.—After the flexor surface of the forearm has been cleansed with ether, two small drops of old tuberculin are applied on two spots about 10 cm. apart. With a Pirquet borer, dental burr or similar instrument, which has been previously cleansed and sterilized in a bare flame, a superficial abrasion of the skin is made midway between the two drops to serve as a control. A similar abrasion is then made through each drop of tuberculin. After a few minutes of drying and the careful removal of any excess of tuberculin, a sterile dressing is applied. Readings are made in twenty-four and forty-eight hours. In a positive reaction there is an area, from 0.5 to 2 cm. in diameter, of redness and infiltration about the two outer abrasions, while the central one should not show any reaction. Modifications of Pirquet's cutaneous test have been described but differ chiefly in the method of scarification.

Intracutaneous Test of Mendel [10] *and Mantoux.*[11]—Old tuberculin is diluted with saline solution containing 0.5 per cent phenol (carbolic acid), and injected into the skin of the forearm. The initial dilution used is either 1:10,000 or 1:1,000, and since approximately 0.1 cc. is injected, the amounts of tuberculin are 0.01 or 0.1 mg., respectively. I use, as a matter of routine, the 1:1,000 dilution, although in a few exceptional cases in which there is reason to suspect a marked reaction, the higher dilution is employed. A control of phenolized saline solution or of glycerin broth should always be injected simultaneously. Care must be exercised that there are no traces of tuberculin in the control syringe or needle. This sometimes occurs if these articles have been previously used for tuberculin tests and have not been thoroughly washed out. Readings are made as with the Pirquet test. The inflammatory reaction is usually larger than that following the cutaneous test. Occasionally, intense reactions occur, in which the area of induration is very large; superficial necrosis may be present in the center, and even a lymphangitis with swelling and tenderness of the axillary glands is sometimes observed.

If the first test is negative it should be repeated with stronger concentrations, 1:100 and then 1:10 dilutions (1 mg. and 10 mg. of tuberculin, respectively).

The Subcutaneous Local Test of Hamburger.[12]—This is the same as Koch's original test except that the interpretation of the result is based on the local response instead of on the constitutional and focal reactions as described by Koch.

It is carried out in the same manner as the intracutaneous test except that the injection is made subcutaneously. The initial dilution should not be stronger than 1:10,000. Positive reactions cause induration and redness. Increasing concentrations may be employed if the first is negative.

The Percutaneous Test of Moro.[13]—An ointment is prepared by mixing 5 cc. of old tuberculin with 5 Gm. of wool fat. A bit of this is gently rubbed on a small area of the skin of the chest or abdomen. In a positive test the area becomes hyperemic and is studded with a varying number of small red papules resembling tuberculids.

The Conjunctival Test of Wolff-Eisner [14] *and Calmette.*[15]—A drop of a 1 per cent solution of old tuberculin is placed in the conjunctival sac near the inner canthus. In a positive test that portion of the conjunctiva becomes hyperemic, and sometimes there is lacrimation and a sensation of burning.

This test should not be employed in so-called scrofulous persons or in any patient with a lesion of the eye.

4. Rominger, E., and Rupprecht, P.: Zur Aktivitätsdiagnose der Tuberkulose im Kindesalters, Ztschr. f. Kinderhk. **41**: 619, 1926.
5. Eberson, F. C.: Studies in Tuberculosis Immunity: I. Diagnostic and Sensitizing Properties of Some New Derivatives of Tuberculin, Am. Rev. Tuberc. **10**: 681 (Feb.) 1925.
6. Baldwin, E. R.: Investigations into the Nature of Tuberculin Sensitiveness, Tr. Nat. A. Study & Prev. Tuberc., 1911, p. 351.
7. Zinsser, Hans; and Petroff, S. A.: Tuberculin Hypersensitiveness Without Infection in Guinea-Pigs, J. Immunol. **9**: 85 (March) 1924.
8. Austrian, C. R.: Observations on Children Admitted to a Tuberculosis Dispensary, Tubercle **6**: 29 (Oct.) 1924.
9. Krause, A. K.: Human Resistance to Tuberculosis at Various Ages, Am. Rev. Tuberc. **11**: 303 (June) 1925.
10. Mendel, F.: Die von Pirquetsche Hautreaktion und die intravenose Tuberkulin behandlung, Med. Klin. **4**: 402 (March 22) 1908.
11. Mantoux, C.: Intradermoreaction de la tuberculine, Comp. rend. Acad. d. sc. **147**: 355, 1908.
12. Hamburger, F.: Ueber den Wert der Stichreaktion nach Tuberkulininjection, Wien. klin. Wchnschr. **21**: 381, 1908.
13. Moro, E.: Ueber eine diagnostisch verwertbare Reaktion der Haut auf Einreibung mit Tuberkulinsalbe, München med. Wchnschr. **55**: 216 (Feb. 4) 1908.
14. Wolff-Eisner, A.: Berl. klin. Wchnschr. **44**: 700 (June 3) 1907, discussion.
15. Calmette, A.: Sur un nouveau Procédé de diagnostic de la tuberculose chez l'homme par l'ophtalmo-reaction à la tuberculine, Comp. rend. Acad. d. sc. **144**: 1324, 1907.

The Wildbolz Auto Urine Test.[16]—This is not a tuberculin test in the true sense, but is based on the fact that urine of tuberculous individuals was thought to contain a substance which would give a positive skin test in the same individual or in others who had tuberculosis. A morning urine specimen is evaporated to one-tenth its original volume and filtered to remove the precipitated salts. About 0.05 cc. is injected intracutaneously. A positive test produces a reaction similar to that of the Mantoux test. Wildbolz believed it was positive only in active forms of tuberculosis.

Eberson[17] has discovered that the serum of tuberculous patients and guinea-pigs produces a reaction in the skin of both normal and tuberculous individuals. He believes that this reaction is due to a toxin which is not tuberculin, since it is destroyed by heating to 65 C.

RELATIVE VALUE OF THE TESTS

The cutaneous test of Pirquet and the intracutaneous test of Mendel and Mantoux have been most widely used by pediatricians in this country. My opinion is that the others do not have points of superiority and have certain disadvantages. The subcutaneous test, according to Finkelstein,[18] often gives atypical reactions that are hard to interpret, and in addition may produce severe constitutional and focal symptoms. In Moro's test the dosage cannot be accurately measured. It also may produce severe reactions. The conjunctival test is hard to carry out in children. It sometimes produces severe inflammations of the eye, and these may recur following subsequent injections of tuberculin for diagnosis or therapy. I believe that there is no justification whatever for its use in children. If the auto urine test were a true index of activity, it might be of considerable value. Many recent reports, however, based on experimental studies condemn it as being unreliable and nonspecific in character.

The choice between the cutaneous and intracutaneous tests is based chiefly on the degree of sensitiveness desired. According to Happ and Casparis,[19] the Pirquet test has the same degree of sensitiveness as 0.01 mg. of tuberculin injected intracutaneously. Individuals requiring larger amounts to produce a reaction will show a negative Pirquet reaction. The latter test is simpler to perform, especially as an office procedure, is less disturbing to the child, and will be positive in the majority of cases of tuberculosis, but it will often fail when it is most needed. Happ and Casparis found it negative in half of their patients with miliary tuberculosis and tuberculous meningitis. Yet with increasing doses of tuberculin given intracutaneously, they were able to get reactions in practically all their cases.

The intracutaneous test has been used as a part of the routine in all cases admitted to the teaching services of the Pediatric Department of Western Reserve University in Cleveland for about eight years. The initial dose is 0.1 mg.; if this gives a negative result the house physician immediately repeats the test, injecting either 1 or 10 mg. of tuberculin. If the patient still does not show any reaction or if the reaction is atypical in any way and if there is still reason to suspect tuberculous infection, fresh solutions are prepared, and the tests repeated until a definite positive or negative result is obtained. Sometimes the tuberculin solutions have to be checked on a known case of tuberculosis. In searching our records, I have been unable to find since 1921 a case with the diagnosis of tuberculosis verified by a necropsy, sputum or spinal fluid examination, or typical roentgenogram in which we were unable to obtain a positive intracutaneous tuberculin test.

The literature is full of reports showing the disparity between the results of the cutaneous and the intracutaneous tests. Mantoux[11] pointed this out in his original description of the intracutaneous test. The statistics on the incidence of tuberculosis in children were the subject of severe criticism in a paper by Hamburger[20] because most of them have been based on cutaneous tuberculin tests. He says that the error may be as high as 40 per cent. Bass[21] found that only 10 per cent of 206 children in an institution gave a positive reaction after three cutaneous tests, while 25 per cent gave positive reactions after three additional intracutaneous tests.

THE USE OF HUMAN AND BOVINE TUBERCULINS

Detre,[22] in 1908, on the basis of some work in which he found certain children reacting only to human or only to bovine tuberculins, suggested that the type of infecting tubercle bacilli could be determined in this manner. He believed, as others have since his time, that during periods when the skin reaction is weak (the incubation period and after healing has progressed to a certain stage), the tissues reacted only to the tuberculin from the infecting type of organism.

Downing and Higgins[23] have reviewed the literature and reported some observations of their own. Their conclusions in general confirm those suggested by Detre.

Finkelstein[18] states that most cases react equally to the two types of tuberculin but that he has seen a few of abdominal tuberculosis in which the bovine solution alone was positive. He agrees that a mixed tuberculin is the ideal preparation. Kleinschmidt[24] has also observed patients who reacted to only one type, but he has been unable to correlate the type of disease with the type of tuberculin giving the positive results. He believes that differences in the toxicity of various lots of tuberculin are responsible for these results.

For the past year at the Babies and Childrens Hospital in Cleveland, we have employed the two tuberculins simultaneously as a matter of routine. In all, approximately 700 patients have been tested in this manner. Occasionally there has been a difference in the intensity of the reactions, and in three cases the bovine solution alone was reported positive in doses of 10 mg. Further tests, however, resulted in reactions of equal intensity to the two types.

In concluding the discussion of this question, I am convinced that although some individuals may react to a greater degree to the homologous tuberculin, it would be an unsafe policy to attempt the differentiation of the type of infecting organisms on the basis of the tuberculin test. I believe also that practically all tuberculous patients will react to either type of tuberculin provided large enough doses are employed.

16. Wildbolz, H.: Der biologische Nachweis aktiven Tuberkulose herde des menschlichen Korpers durch die intrakutane Eigenharnreaktion, Cor.-Bl. f. schweiz. Aerzte **49**: 793 (May) 1919.
17. Eberson, F. C.: Studies in Tuberculosis: VIII. The Identification of a Skin Reacting Substance in Tuberculous Sera, Am. Rev. Tuberc. **15**: 127 (Jan.) 1927.
18. Finkelstein, H.: Säuglingskrankheiten, ed. 2, Berlin, 1921.
19. Happ, W. H., and Casparis, H. R.: The Value of the Intracutaneous Tuberculin Test in Extensive Tuberculosis, Am. J. Dis. Child. **23**: 527 (June) 1922.
20. Hamburger, F.: The Frequency of Tuberculosis in Childhood, Am. J. Dis. Child. **23**: 481 (June) 1922.
21. Bass, M. H.: Cutaneous and Intracutaneous Tuberculin Tests in Infants and Children, Am. J. Dis. Child. **15**: 313 (May) 1918.
22. Detre, L.: Differentielle Tuberkulinreactionen, Wien. klin. Wchnschr. **21**: 173 (Feb. 6) 1908.
23. Downing, H. F., and Higgins, H. L.: Intracutaneous Tests with Human and Bovine Tuberculin, Am. J. Dis. Child. **31**: 178 (Feb.) 1926.
24. Kleinschmidt, H.: Tuberkulose der Kinder, Leipzig, Johann Ambrosius Barth, 1923.

CONDITIONS THAT INFLUENCE THE TUBERCULIN REACTION

During the incubation period of tuberculosis, the skin reaction develops gradually. This is illustrated by data collected by Epstein.[25] The intracutaneous and subcutaneous tests were positive during a period of from three to seven weeks after exposure, while the period when the cutaneous tests first appeared was from four to ten weeks following exposure.

There is a depression of allergy, as shown by the skin reaction during certain acute infections, perhaps to some degree in all of them. Pirquet[26] was the first to describe this effect during measles, and Bloomfield and Mateer[27] have observed the same phenomenon during epidemic influenza. Various other diseases are often mentioned in this connection, although there seem to have been few careful observations in support of the reports.

The weak reactions which occur in advanced and overwhelming forms of tuberculosis may not be due entirely to depression of allergy. That dehydration and circulatory failure distinctly influence inflammatory reactions of this nature has been shown by J. D. Pilcher at the Babies and Childrens Hospital in Cleveland. Using the morphine wheal test, he found that the ability to form a wheal in response to intracutaneous injections of usual amounts of morphine was impaired or was lost entirely in patients showing the aforementioned picture. In a few instances he performed the morphine and tuberculin tests simultaneously on patients with miliary tuberculosis, and found that the reactions were nearly parallel.

In certain forms of tuberculosis, the patient nearly always gives a very intense tuberculin reaction. I refer particularly to those children who, among other lesions, have phlyctenular conjunctivitis. The clinical picture often goes by the name scrofula. The patients usually show some of the signs of the exudative diathesis, and are likely to be sensitive to other proteins. There has been an impression, especially among foreign pediatricians, that patients with this clinical picture have an unusually good prognosis as regards tuberculosis. I have had the same impression, and it was supported by following a group of these patients over a number of years and finding that there were no deaths from tuberculosis. This brings up an old theory held at various times that a strongly positive tuberculin reaction is evidence of a good prognosis. There are many references to this in the literature, but at present the unknown factors are so numerous that it is unsafe to make a prognosis on the intensity of the skin reaction.

Interesting observations on variations in allergy have been made by Krause and Willis,[28] Hamburger,[29] Peyrer,[30] Schnippenkötter,[31] Ossoinig[32] and others. Krause and Willis, as the result of experiments in which guinea-pigs were subjected to repeated reinfections, believe that, during a general allergic reaction of a certain intensity, tissue allergy may be diminished. This would have a direct bearing on the intensity of skin reactions, and I have observed in the clinic patients in whom I believe this state of affairs was present. In another article[33] in which Gerstenberger and I reported a small series of cases with lobar infiltrations, we stated that the skin reactions were often weak, even though we believed that the infiltrations were of an allergic nature. Although some of the patients appeared quite ill, all of them recovered. Unfortunately, skin tests were not performed after recovery. Recently, we observed a boy with tuberculous peritonitis. The illness began acutely three days before admission, and during that period there was a large accumulation of fluid in the peritoneal cavity. This patient had a high temperature, and the peritoneal fluid contained 1,700 cells per cubic millimeter, more than half of which were of the polymorphonuclear type. With 10 mg. of tuberculin intracutaneously very little induration was produced, although pigmentation about the site of injection persisted for a week. The acute onset, the fever and the polymorphonuclear response were, we believe, evidences of an intense allergic reaction.

Hamburger[29] and Peyrer,[30] after repeating tuberculin tests on a group of children, concluded that there is a seasonal variation in the allergy. The patients showed stronger reactions in the spring than they did in autumn. In contrast to this, Schnippenkötter,[31] working among adults in the tertiary stage of tuberculosis, found the reactions less intense in winter and early spring. Ossoinig,[32] in Hamburger's clinic, followed a group of children for three years and observed a periodic variation in skin sensitiveness. The positive phase lasted about one week, and the negative phase from one to three weeks; but the variation was always the same in any individual. He was unable to offer a satisfactory explanation for these phenomena.

With the numerous technical difficulties which prevent absolute standardization of the results, it would seem that these reported variations require further substantiation.

ATYPICAL REACTIONS

In a typical reaction to intracutaneous injection, the redness and infiltration is sharply defined with the site of the needle puncture near the exact center. The infiltration is greatest in the center and to palpation is distinctly firm, and raised above the uninvolved portion of the arm.

In very dark-skinned individuals, palpation may give more information than inspection. The duration of the inflammatory response varies, weak reactions lasting only for a day or two while marked ones may be present for a week. Pigmentation in this area may persist for months, and if necrosis has occurred the scar may also be observed for long periods.

If the solutions of tuberculin are contaminated with pyogenic organisms, pseudopositive reactions may occur. These are not usually hard to differentiate from true reactions. Sometimes a large erythematous patch appears a few minutes after injection. If this persists only a few hours it is probably only a vaso-

25. Epstein, B.: Zur Kenntnis der Inkubation der Tuberkulose, Monatschr. f. Kinderh. **31**: 475 (Jan.) 1926.
26. Pirquet, C. E.: Das Verhalten der kutanen Tuberkulinreaktion während der Masern, Deutsche med. Wchnschr. **34**: 1297 (July 23) 1908.
27. Bloomfield, A. L., and Mateer, J. G.: Changes in Skin Sensitiveness to Tuberculin During Epidemic Influenza, Am. Rev. Tuberc. **3**: 166 (May) 1919.
28. Krause, A. K., and Willis, H. S.: The Influence of Frequently Repeated Reinfections on Allergy and Immunity in Tuberculosis, Am. Rev. Tuberc. **10**: 316 (Sept.) 1926.
29. Hamburger, F.: Jahrezeitliche Schwankungen der Tuberkulinempfindlichkeit, München. med. Wchnschr. **67**: 398 (April 2) 1920.
30. Peyrer, K.: Jahrezeitliche Schwankungen der Tuberkulinempfindlichkeit und mancher Tuberculose Erkrankungen, Beitr. z. Klin. d. Tuberk. **48**: 137 (June 10) 1921.
31. Schnippenkötter, W.: Laufende Allergieprüfungen während längeren Heilstättenaufenthaltes bei meist tertiären Tuberkulosen und jahrezeitliche Schwankungen der Tuberkulinempfindlichkeit, Beitr. z. Klin. d. Tuberk. **65**: 41 (Nov. 25) 1926.
32. Ossoinig, K.: Ueber Schwankungen der Tuberkulinempfindlichkeit, Beitr. z. Klin. d. Tuberk. **64**: 652 (Oct. 30) 1926.
33. Gerstenberger, H. J., and Burhans, C. W.: Treatment of Extensive Pulmonary Tuberculosis in Infants with Ultraviolet Rays, Am. J. Dis. Child. **33**: 54 (Jan.) 1927.

motor response to trauma, but if it lasts for a day or two its significance may be hard to evaluate, especially if there is no induration. Again, there may be edema without redness. Some persons seem to be sensitive to the small amounts of phenol used as a preservative, and others to the glycerin broth. Both these reactions usually appear within a few hours after injection. Suitable control solutions will help in the interpretation of these reactions.

Delayed reactions are not uncommon, occurring especially in the advanced stages of the disease or during the course of acute infections. These rarely appear after forty-eight hours.

Diminished reactions or negative tests may occur for several days following large doses of tuberculin.[34]

DIAGNOSTIC VALUE OF THE TUBERCULIN TEST

A positive tuberculin test occurs only in individuals who have been infected with tubercle bacilli. The evaluation of the test in conjunction with other symptoms and signs presented by the patient must be left to the attending physician. It is hardly necessary for me to say that a great many children with positive reactions never develop symptoms from their tuberculosis. That a positive test in a child under 3 years of age is more likely to be indicative of an active lesion has long been pointed out. More children of this age are closer chronologically to their primary infection, and therefore have not had the time to wall it off. Furthermore, there is an opinion held by some observers that during this age period children have less capacity to localize an infection. According to Krause,[9] this may be due partially to a greater permeability of the lymphatic system.

I am absolutely in agreement with Hawes[35] that a diagnosis of tuberculosis should not be made during childhood without the aid of a positive tuberculin test. Hawes qualifies his statement with the words "unless the child has recently recovered from measles or any other acute infection which might lead to a negative test or unless the child has advanced tuberculosis." I believe that even these limitations can generally be excluded if the intracutaneous test is performed with the exacting technic previously described.

The same rule applies to the value of a negative test in the exclusion of a tuberculous infection. If the test is properly performed and controlled and repeated attempts are consistently negative, with very few exceptions tuberculosis may be eliminated from consideration. Every pediatrician knows what a source of relief this may be to the patient's family. In the past year I have seen two physicians' children in whom the diagnosis of pulmonary tuberculosis had been made on the basis of the roentgenogram. Both these children reacted negatively to two separate injections of 10 mg. of tuberculin.

SEROLOGIC TESTS

Complement Fixation.[36]—This test is believed to be positive only in the presence of an active lesion. The reasoning seems to be logical because permeability of the wall of the tubercle must be present in order to produce the symptoms of tuberculous disease, and the same permeability permits the escape of complement fixing antibodies. If the lesion is surrounded by a nonvascular capsule, interchange with circulating blood does not occur. Unless there is a focus for the continual source of these antibodies, they apparently soon disappear from the blood. This is in contrast to the tissue sensitization to tuberculin, which, once established, persists for a long time.

Of the relatively few investigations of this test in relation to tuberculosis in childhood, Cooke[37] of St. Louis seems to have made the most thorough observations. The test has more limitations during childhood than it has during adult life. Cooke[38] confirmed the work of Rosencrantz[39] concerning the placental transmission of complement fixing antibodies. The blood of infants during the first few months may give a positive reaction, although the infant does not have tuberculosis. On the other hand, in children known to be infected he was never able to get a positive reaction during the first year of life. In tuberculous children the percentage of positive reactions increased up to the sixth year, and thereafter it was approximately the same, as is generally found among adults with tuberculosis; that is, from 80 to 85 per cent. Cooke found that patients with congenital syphilis and those convalescing from diphtheria frequently gave positive reactions. Also, those treated with tuberculin usually developed positive reactions.

He was of the opinion that the test was of considerable value in the detection of a certain form of the disease which he termed "masked tuberculosis." The children of this group had positive skin tests and indefinite constitutional symptoms, but were without demonstrable physical signs. A positive reaction was reasonable evidence that the lesion was in the active stage.

The few other reports have not been very favorable. This is not surprising, since the observations were made on small groups and probably many of the patients were less than 6 years of age. Furthermore, the technic of the reaction, at least until recent years, had not been adequately standardized.

In 1925, E. R. Baldwin,[40] director of the Trudeau Foundation, made the following critical statement regarding this test:

> The interpretation of a positive reaction is, however, to be made with caution both in diagnosis and in prognosis—and a single test is insufficient for diagnosis; because with few exceptions the performance of the test requires closer watch on technical details than any other routine laboratory measure. Under these limitations its use is restricted, but can be advocated as valuable.

When it is considered that Baldwin is probably referring to adult tuberculosis, it must be admitted that in childhood the limitations are still greater.

Precipitins.—Precipitin tests have been advocated for a number of years. The antigen employed has generally been tuberculin or a closely related substance. The antigen is placed over the patient's serum in a test tube, so that mixing is prevented. A cloudy ring at the junction of the antigen and serum indicates a positive test. Like complement fixation, the test is

34. Hamburger, F., and Peyrer, K.: Die negative und positive Phase der Tuberkulinempfindlichkeit, Wien. klin. Wchnschr. **24**: 157 (April 7) 1921.

35. Hawes, J. B., 2d: Juvenile Tuberculosis, Am. Rev. Tuberc. **6**: 606 (Sept.) 1922.

36. This test was first applied to tuberculosis by Widal, F., and LeSourd, L.: La sensibilisatrice dans le serum des tuberculeux, Bull. et mém. Soc. méd. d. hôp. d. Paris **18**: 787 (July 11) 1901.

37. Cooke, J. V.: Complement Fixation for Tuberculosis in Children, Am. J. Dis. Child. **21**: 78 (Jan.) 1921.

38. Cooke, J. V.: Transmission of Complement Fixing Substances from Mother to Child, Am. Rev. Tuberc. **6**: 127 (April) 1922.

39. Rosencrantz, E.: Comp. rend. Soc. d. biol. **63**: 142, 1911, quoted by Cooke.

40. Baldwin, E. R.: De Lamar Lectures 1925-1926, Baltimore, Williams & Wilkins Company, 1927.

believed to be significant of pathologic activity. A few years ago, Larson, Montank and Nelson [41] devised a new reagent prepared by disrupting tubercle bacilli with carbon dioxide under pressure. Montank [42] later found that various phenols could be used as antigens, and employed a 0.2 per cent tricresol solution. Other reports [43] on the use of the precipitin test show a fair degree of correlation with the clinical and roentgenologic signs of activity. Positive tests are obtained also in certain acute infections. It is evident that this procedure needs further study.

Sedimentation Test.[44]—This is not a true diagnostic test except as an aid in determining the severity of the disease. The speed of sedimentation of the red corpuscles is increased with the increase in the blood of certain proteins, chiefly fibrinogen and globulin. The fibrinogen of the serum is increased in practically all acute infections and in tuberculosis as well. The increase is in more or less direct proportion to the extent of the disease, so that the sedimentation test is of some prognostic value.

CONCLUSIONS

1. Of the various tuberculin tests, the cutaneous of Pirquet and the intracutaneous of Mendel and Mantoux are of the greatest practical value.[45]

2. The choice between these two tests is based chiefly on the sensitiveness desired. The Pirquet test is equal in sensitiveness to 0.01 mg. of tuberculin injected intracutaneously.

3. The intracutaneous method is the one of choice for routine hospital use. Initial amounts of 0.1 mg. may generally be employed, and increasing amounts up to 10 mg. should be injected before the reaction can be considered negative.

4. A diagnosis of tuberculosis in childhood should never be made, except possibly in a few instances in which the interval before death is too short, without the aid of a positive tuberculin test.

5. A negative intracutaneous test properly performed and controlled excludes tuberculosis except in rare instances. In my own experience I have been able to obtain a positive test in all cases which have been proved to be tuberculosis.

6. It has not been proved that the type of infecting bacilli can be differentiated by the use of human or bovine tuberculin. The use of both types or a mixture does not seem to be necessary, provided large enough doses of either are employed.

7. The complement fixation test may be of value in selected cases in determining the activity of the disease, but the results should be interpreted with a great deal of caution.

8. The Wildbolz auto urine test has not fulfilled early expectations and it does not have much to recommend it. Precipitation tests require further observations before they can be considered of much diagnostic aid. The rate of sedimentation of red corpuscles may give some indication of the activity of the disease.

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[EDITORIAL NOTE.—This paper, together with the papers by Drs. Opie and Hempelmann, which precede it, and two papers by Dr. Dunham and Drs. Gittings, Lathrop and Anderson, to appear next week, constitute a symposium on pulmonary and bronchial gland tuberculosis. The discussion will follow the papers to be published in the next issue.]

41. Larson, W. P.; Montank, I. A., and Nelson, E.: A Precipitin Test in the Diagnosis of Tuberculosis, Proc. Soc. Exper. Biol. & Med. **20**: 350, 1923.

42. Montank, I. A.: The Reaction of Tubercular Serums to Phenols, Proc. Soc. Exper. Biol. & Med. **21**: 547, 1924.

43. Myers, J. A.: A Study of Clinical Findings and Ring Test in Five Hundred Cases Examined for Tuberculosis, Am. Rev. Tuberc. **11**: 71 (March) 1925. Stewart, C. A., and Collins, A. E.: A Comparison of the Pirquet, Mantoux, Ring and Tubercumet Tests in Lymanhurst Children, Am. J. Dis. Child. **32**: 367 (Sept.) 1926.

44. Fahraeus, F.: Ueber die Ursachen der Verminderten Suspensionstabilität der Blutkorperchen während der Schwangerschaft, Biochem. Ztschr. **89**: 355, 1918.

45. Since this article was written I have learned that the material used in the Moro percutaneous test has been improved and as a result the test has become more sensitive. This has greatly increased its popularity in certain parts of Europe and it seems probable that, because of its simplicity and painlessness, it will, especially in private practice, replace the Pirquet test altogether and to a certain extent the intracutaneous as well.

GENERAL PARALYSIS

THE EFFECT OF NONSPECIFIC PROTEIN THERAPY ON THE BLOOD AND SPINAL FLUID *

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The favorable effects of fever on certain types of psychoses was known to Hippocrates and Galen, but it seems that Rosenblum,[1] in 1875, was the first to inoculate purposely patients suffering from psychoses with febrile producing organisms. As early as 1854, Jacobi [2] reported on the use of artificial abscesses in the treatment of general paralysis. In 1887, Wagner von Jauregg [3] published a collected review of the influence of such diseases as cholera, typhoid, erysipelas and relapsing fever on psychoses, and proposed that one should intentionally imitate these experiments of nature for the cure of psychoses. This suggestion was realized by von Jauregg [4] when, in the summer of 1917, he inoculated patients suffering from general paralysis with *Plasmodium vivax*, which he obtained from the blood of a soldier ill with malaria fever. Previous to this, von Jauregg and Pilcz [5] treated general paralytic patients with Koch's old tuberculin. The resulting remissions in some cases were so "complete" that, according to von Jauregg,[6] some still retained their capacity for their full occupation as late as 1921 (first reported in 1909). Brief reports have also been made on the use of streptococcus, staphylococcus and Besredka's typhoid vaccine [7] (sensitized living typhoid bacilli). In this brief recapitulation of the historical setting of the treatment of general paralysis mention should also be made of the use of sodium nucleate [8] to produce pyrexia, and the successful results of Plaut

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* This work has been conducted under a grant from the Douglas Smith Foundation for Medical Research of the University of Chicago in the Department of Physiology. The patients were residents of Cook County, Chicago State and St. Luke's hospitals.

1. Rosenblum, cited by Oks, B.: Arch. f. Psychiat. **10**: 249, 1880. Motschutkoffsky: Centralbl. f. d. med. Wissensch. **11**, 1876.

2. Jacobi, cited by Friedländer (footnote 7).

3. Wagner, Julius: Ueber die Einwirkung fieberhafter Erkrankungen auf Psychosen, Jahrb. f. Psychiat. **7**: 94, 1887.

4. Von Jauregg, Wagner: Die Einwirkung der Malaria auf die progressive Paralyse, Psychiat.-neurol. Wchnschr. **20**: 132, 1918-1919.

5. Pilcz, A.: Beiträge zur Lehre von progressiven Paralyse, Jahrb. f. Psychiat. **25**: 97, 1904; Zur Tuberkulintherapie bei der progressiven Paralyse, Wien. med. Wchnschr. **57**: 1462, 1907; Weiter Bericht über die Tuberculinbehandlung der progressiven Paralyse, ibid. **62**: 2010-2083, 1912.

6. Wagner, Jauregg: The Treatment of General Paralysis by Inoculation of Malaria, J. Nerv. & Ment. Dis. **55**: 369, 1922.

7. Von Jauregg, Wagner: Ueber Behandlung der progressiven Paralyse mit Bakterien-toxinen, Wien. med. Wchnschr. **25**: 61, 1912; Ueber Behandlung der progressiven Paralyse mit Staphylokokkenvakzine, ibid. **63**: 2555, 1913. Friedländer: München. med. Wchnschr. **59**: 2038, 1912.

8. Fischer, Oskar; et al.: Ueber die unspezifischen Methoden zur Behandlung der progressive Paralyse, Med. Klin. **19**: 1485 (Nov. 11) 1923.

and Steiner [9] in producing intermittent fever by inoculating with the spirochetes of relapsing fever. Lastly, Solomon [10] has introduced the method of inoculating with the organism which causes sodoku.

In the preliminary experiments of von Jauregg, beginning with the tuberculin therapy, and reported at the International Congress at Budapest in 1909, and ending with the advent of the malarial treatment in 1917, von Jauregg was impressed with the complete and lasting remissions following in those cases in which intercurrent infections had been observed during the course of the treatment. It was this observation which led to the method of inoculating with the malarial organism.

These different methods have one fundamental factor in common, i. e., the production of fever, which forms the basis of von Jauregg's theory as to the nature of the therapeutic effects of the malarial treatment. This theory seems to be supported by the experiments of Weichbrodt and Jahnel,[11] who subjected rabbits with syphilis to a temperature of from 107.6 to 110 F. for one hour. Repetition of this process for three times caused a complete disappearance of the spirochetes from the scrotal chancre. Disregarding humoral changes that may occur during such a process, the evidence indicates that hyperpyrexia may be induced in a living organism sufficient in degree to be lethal to the spirochetes without the animal sustaining permanent injury.

The untherapeutic measure of inoculating patients with a disease producing organism; the high mortality directly attributable to the malarial treatment (according to a recent review [12] this varies in different clinics from no mortality to 33⅓ per cent of those inoculated); the natural or partial immunity found in some patients, and the difficulty in maintaining an available strain of tertian plasmodium continually occur as obstacles of no mean proportions, and are sufficiently discouraging to stimulate search for an equally effective but less dangerous method of combating the disease.

The similarity known to exist between the malarial paroxysm and the phenomena following the intravenous injection of foreign protein suggests that the favorable influence of the malarial treatment may be due to the production of a foreign protein rather than to a specific effect of the malarial parasite. It has been shown that in order to infect a mosquito, the patient's blood must contain one crescent to every 500 leukocytes. It has also been shown that there may be from sixty-seven to ninety-two crescents per hundred leukocytes. According to Cowie and Calhoun,[13] an ounce of blood might easily contain one billion malarial parasites. When these die, a dose of foreign protein has been liberated into the blood stream adequate to produce a malarial paroxysm or a typical nonspecific protein chill. Moreover, Barr, Cecil and Du Bois [14] showed that some of the fundamental changes in physiologic processes after the intravenous injection of foreign protein are identical to those observed during the malarial paroxysm. Considering the mechanism of the rise and fall in body temperature, these authors showed that in both cases, during the chill, the heat production was greatly inceased while the elimination remained practically at its basal level. After the chill the heat production drops sharply, heat elimination remaining unchanged. During the stage of continuous high temperature, the heat production drops gradually and heat elimination increases. The respiratory quotient is high during the chill, indicating the rapid combustion of stored glycogen. After the chill, the quotient falls steadily.

The blood changes following the intravenous injection of foreign protein are most striking, and have been described in detail by Scully [15] and others. According to Cowie and Calhoun, no matter what the pathologic condition is, in all cases intravenous injections of foreign protein bring forth the characteristic reaction; this consists of a leukopenia of short duration followed by a leukocytosis not necessarily proportional to the pyrogenic reaction. Polymorphonuclears are most pronounced at this time, but in addition both atypical and abnormal cell forms appear, of the large and small lymphocyte type; also myelocytes, normoblasts and megloblasts. The absence of eosinophils and the temperature reaction indicate that the response is not of an anaphylactic nature. In our preliminary report,[16] we noted that the blood in patients with general paralysis conforms to the conditions mentioned.

Studies in blood changes after inoculation with malaria [17] indicate that soon after the inoculation there is evidence of a stimulating effect on red blood cell formation which is followed by the typical malarial anemia. Skolweit [18] found that immediately after the malarial attack there is a lymphocytosis which continues for some time.

Our knowledge of the technic of foreign protein therapy has greatly increased since the contributions of Jobling,[19] Petersen,[20] Miller [21] and others have been added to the pioneer work of Ichikawa.[22] Our results indicate that much larger doses than heretofore administered can be given with impunity, if a small dose is given at the beginning and each successive dose gradually increased until a sufficient quantity is reached to produce the desired effects. As a result of this, patients with general paralysis are subjected to a series of chills followed by fever which simulates the malarial paroxysm, without inoculation with a disease-producing organism.

In our series each patient has received one or two courses of treatment. Each course consists of a series of from eighteen to twenty-three intravenous injections of foreign protein in the form of typhoid combined vaccine (administered every second or third day) sufficient in quantity to produce a chill followed by fever with a fastigium of from 103 to 104 F. (rectally). In one instance the temperature rose to 107 F. without untoward results. The vaccine is diluted with physiologic sodium chloride solution, so that each cubic centimeter of the dilution contains 200 million dead

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10. Solomon, H. C.; Berk, A.; Theiber, M., and Clay, C. L.: The Use of Sodoku in the Treatment of General Paralysis, Arch. Int. Med. **38**: 391 (Sept.) 1926.
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15. Scully, F. J.: The Reaction After Intravenous Injections of Foreign Protein, J. A. M. A. **69**: 20 (July 7) 1917.
16. Kunde, M. M.; Hall, G. W., and Gerty, F. J.: Nonspecific Protein Therapy in General Paralysis, J. A. M. A. **87**: 1376 (Oct. 2) 1926.
17. Pijper, A., and Russell, B. D.: Incubational Changes in the Red Cell Count on Inoculated Malaria, Brit. M. J. **2**: 620 (Oct. 4) 1924.
18. Skolweit, quoted by Ferraro and Fong (footnote 12).
19. Jobling, J. A., et al.: Studies on Ferment Action, J. Exper. Med. **21**: 239, 1915.
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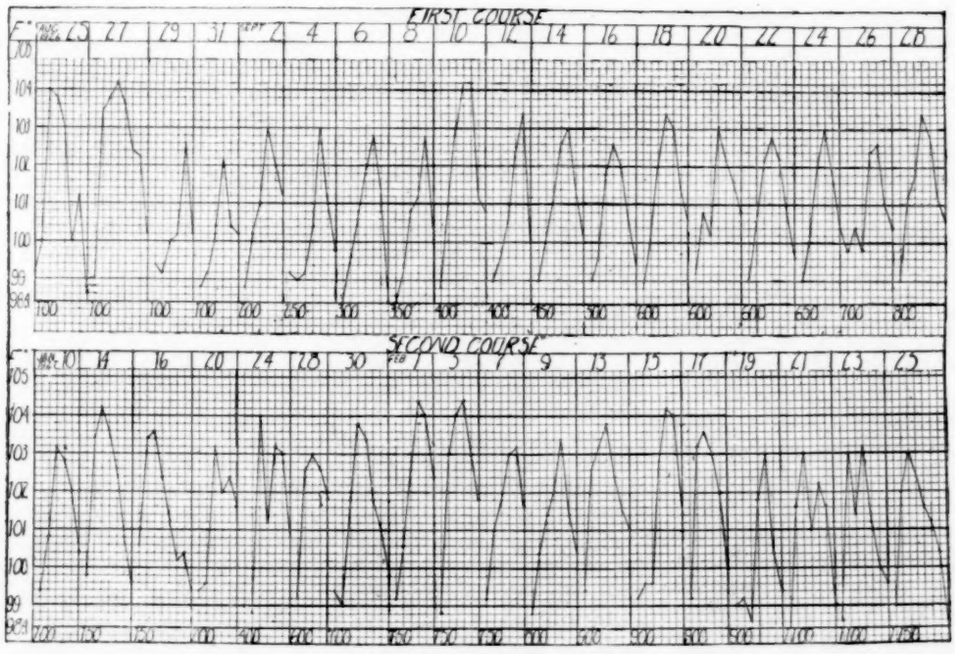
21. Miller, J. L., and Lusk, F. B.: The Treatment of Arthritis by the Intravenous Injection of Foreign Protein, J. A. M. A. **66**: 1756 (June 3) 1916.
22. Ichikawa: Ztschr. f. Immuntätsforsch. u. exper. Therap. **23**: 32, 1914.

bacilli. The dosage is calculated in terms of cubic centimeters. The initial dose for each patient consists of fifty million dead bacilli. The number of bacilli given in subsequent doses depends entirely on the individual response of the patient, and must be gaged by the height of the temperature resulting from the previous dose. A fastigium as low as 102 F. indicates that the next dose must be increased by from twenty-five to 100 million bacilli. In a few instances in which an unusual resistance to the organisms was encountered, the increment in dosage amounted to 250 million. Another patient was highly susceptible to an increase of twenty-five million and required only 200 million to elicit a severe reaction for the twelfth dose. Individual differences in reaction are always apparent. In our series of forty-nine cases no refractory patients were found; i. e., we were always able to produce a fever with a fastigium of 103 to 104 F. when the proper dosage was finally determined. But we repeat with emphasis that this is an individualized therapy, the dosage, after the initial treatment, depending entirely on the response of the individual. Discretion, careful attention and bedside study of the patient by the physician are perhaps required here in a greater measure than in most therapeutic procedures.



Temperature of patient 4, showing the increase in body temperature resulting from intravenous injections of typhoid combined vaccine (B. typhosus, B. paratyphosus A and B. paratyphosus B). The vaccine is diluted with physiologic sodium chloride solution, so that each cubic centimeter of the dilution contains 200 million dead bacilli. The arabic numbers under each curve indicate the number of millions of dead bacilli injected per dose. The small squares indicate hourly intervals after the intravenous injections. This chart shows the increase in body temperature which occurred during two courses of foreign protein therapy, each course consisting of eighteen intravenous injections.

In the majority of instances an increment of 100 million dead bacilli per dose is sufficient to elicit the desired effect, so that on the eighteenth treatment the patient receives an intravenous dose of 1,800 million dead bacilli. One patient required 2,300 million bacilli for the eighteenth dose; another on the eighteenth required only 700 million.

After a two months' interval, a second course of treatments may be instituted. At this time the same severe reaction can be elicited by a dose of fifty million bacilli as was produced by the initial dose of the first course. The successive increments in dosages necessary for a reaction in the second course are comparable to those of the first course. Seven of our patients have already received a second course of treatment. These showed very little, if any, clinical improvement at the end of the first course. During the interval, a slight or pronounced improvement in mental symptoms occurred, and in all cases there was an unusual gain in body weight. Mental improvements continue in six of these following the second course. The seventh patient is rapidly deteriorating.

No attempt is made at this time to discuss in terms of percentage the clinical improvements that may have resulted from this therapy as the total number of cases (forty-nine) is entirely too small to lend itself intelligently to statistical handling. Moreover, the malarial treatment is still *sub judice* despite the thousands of cases so treated in the past decade and the high percentage of remissions reported from the clinics which accept the treatment as favorably influencing the course of general paralysis. These reports have recently been reversed by Ferraro and Fong. Our results present conclusive observations along two sources which offer objective evidence. By means of foreign protein therapy, a series of chills followed by pyrexia, with a fastigium comparable to the malarial paroxysm, can be produced. This conforms to the theory that febrile reactions act favorably on the course of general paralysis. If a humoral change is the essential factor, then it would seem that the leukocytosis resulting from the nonspecific chill would have equal value with the lymphocytosis, after the malarial paroxysm. Much more data based on reliable clinical evidence must be critically analyzed before conclusions can be drawn as to the rôle of these important factors in the treatment of general paralysis.

Modifications of the serologic tests occur in almost every patient who has had a course of the protein therapy. This is most marked in the colloidal gold reaction. The characteristic curve of general paralysis is strikingly modified so as to approach the type of curve characteristic of cerebrospinal syphilis, or in some cases no change above 2 or 3 is apparent. The blood Wassermann reaction is modified in 55 per cent of the cases; 16 per cent changed from a strongly positive to a negative reaction. In one case this again became ++++ after two months. In another case a ++++ Wassermann reaction before treatment was reduced to +++ during the treatments, and two months afterward was completely negative. This represents the extremes of the modification of the blood Wassermann tests. As exact determinations of the globulin were not made, we merely state that a reduction was apparent in many cases, but all cases showed at least + globulin at the end of the course. The cell count in many instances was reduced. In one

case a striking increase occurred, as shown in the table. The spinal fluid Wassermann reaction was reduced in only two cases. During the last two weeks of the course, a slow gain in body weight occurs. This is considerably accelerated during the two months following the treatment. The time element in our experiments is very short, eight months at most. Therefore, little can be said about the duration of the remissions.

In the forty-nine unselected cases thus treated, twenty-one good remissions followed; these patients are restored to their former social conditions or are working at their previous occupations. Eight of the forty-nine are dead; this on a percentage basis gives the idea of a high mortality, but the true condition, as known to us, has little bearing on the effects of the therapy. One died of pneumonia, a condition in no way related to the treatments; one, in a fair state of remission and earning a livelihood for his family, committed suicide because of difficulties with his relatives. Another in the last stages of general paralysis (before the treatment was instituted) developed cerebral symptoms during the course. In the fourth (a paroled alcoholic addict), delirium tremens complicated the final termination. The remaining four gave evidence of rapid deterioration before treatment began; the foreign protein therapy does not seem to influence such cases. We do not advocate the use of this treatment in moribund patients.

One of the most favorable remissions occurred in a man, aged 58. During the treatment dementia was marked; at times there was complete loss of speech, loss of control of the vesical and anal sphincters and all the characteristic serologic observations of general paralysis were strongly present. This man today (four months after the completion of the first course of treatments) is in a state of apparently complete remission.

Serologic Examination of Thirty-Eight Patients with General Paralysis Before and After Nonspecific Protein Therapy

	Before Treatment					After Treatment				
	Blood	Spinal Fluid				Blood	Spinal Fluid			
Case	Wassermann Reaction	Wassermann Reaction	Cells	Globulin	Colloidal Gold	Wassermann Reaction	Wassermann Reaction	Cells	Globulin	Colloidal Gold
1	++++	++++	22	++++	5544322200	++	++++	83	++++	0233310000
2	++++	++++	98	++++	5555554210	+++	++++	61	++++	3555521000
3	++++	++++	4	++++	5555554211	++	No final puncture			
4	++++	++++	45	++++	5555555200	—	++++	54	++++	0555532100
5	++++	++++	6	++++	4433322	—	++++	9	+	0022110000
6	++++	++++	..	.....	.....	++++	++++	..	+++	1433320000
7	++++	++++	13	++++	5555110000	+++	++++	10	++++	1122422100
8	++++	++++	21	++++	44244	++++	++++	17	++++	1224432210
9	++++	++++	88	++++	444433	++++	++++	41	++	1122100000
10	++++	++++	12	++++	555533	+++	++++	25	++++	2222210000
11	++++	++++	20	++++	44444	++++	++++	14	++	1123100000
12	++++	++++	No report	++++	5552200000	++++	++++	8	++++	4422000000
13	++++	++++	No report	++++	3331000000	++	++++	No report	++	3311211000
14	++	++++	5	+	4122000000	—	++++	No report	+(—)	0112221000
15	++++	++++	No report	++++	0002120000	—	++	1	+(—)	00000000
16	++++	++++	46	++++	5555552200	++++	++++	62	++++	5554221000
17	++	++++	No report	++++	012221	—	++++	0	+	0111220000
18	++++	++++	33	++++	5553310000	++++	++++	8	+++	1112220000
19	++++	++++	31	++++	112310000	—	++++	4	+	0001110000
20	++	++++	20	+	5554200000	++	++++	8	++ —	0133100000
21	++	++++	85	+	5555543200	++++	++++	52	+	0133310000
22	++	++++	12	+	5555210000	++	+++	3	—	1444321000
23	.....	++++	7	.....	5555554310	++	++++	9	+	3333000000
24	++++	++++	..	.....	3333310000	++++	++++	3	++	0011110000
25	++++	++++	8	++++	5555554400	++++	++++	Not made	+++	0002210000
26	++++	++++	12	No report	5555531000	++++	.....	..	.....	5555555522
27	++++	++++	No report	.....	5555555522	++++	++++	14	++++	5555543200
28	++	++++	8	++++	5552211000	++	++++	10	++++	1442210000
29	—	++++	137	+++	111221100	—	++++	1	++	1422210000
30	++++	++++	72	++++	0113333311	++++	++++	No report	++	0001221100
31	++	++++	..	++++	5555555500	—	++++	..	++	0555533000
32	—	++++	2	—	0222220000	—	++++	3	—	0000000000
33	—	+++	9	+++	5555040000	—	++++	..	.....	0012221000
34	+++	++++	..	.....	.....	—	++++	15	+++	01122221000
35	++++	++++	4	++++	5555322300	++++	++++	..	+++	5554433000
36	++++	++++	13	++++	5444422000	++++	++++	..	++++	5555440000
37	+++	++++	3	++++	5553333220	++++	++++	..	+++	5555331000
38	+++	++	3	++++	4433321000	+	++	3	—(+)	0011000000

ABSTRACT OF DISCUSSION

DR. A. L. SKOOG, Kansas City, Mo.: We are still in a stage much too early to permit our drawing final, definite conclusions. It will be very interesting to study some of these cases five or even ten years hence. Then we shall know more definitely what the final results will be. Of course, many patients with general paralysis who were unfit have had malarial treatment, and now they have been at work at least several years. But we do not know how long these persons will stay on the job. The tryparsamide treatment, in comparison with the malarial treatment, has given some very interesting results. That malarial treatment tends to produce a pyrexia for a number of days is still open for final discussion. I have had a considerable experience with the malarial treatment. A number of patients have returned to ordinary work and undoubtedly have been kept out of asylums for the insane, and possibly some of them, if untreated, would have been dead by this time. I should like to ask Dr. Hall how long a period he allows before giving a second course of treatment. I am assuming that he has not given a third course to any of these patients as yet. Possibly he intends to do so in the future.

DR. T. R. ROBIE, Poughkeepsie, N. Y.: I have tried out typhoid therapy but have not succeeded in getting any rise in temperature above 104 F. The plan in the New York State Hospital, according to the criteria laid down by Dr. Kirby for the malarial treatment, has been to treat patients who have a temperature of at least 105 F. for a total of at least twelve hours during the course of treatment. In those cases the best results have been obtained. Since the pyrexia is recognized by most men as the factor that is bringing about the good results, I am wondering what will be the effect of the lower temperatures.

DR. A. B. MAGNUS, Chicago: I had the opportunity of observing a few cases of the series reported by the authors, and while it is too soon to make final deductions as far as permanent results are concerned, the immediate clinical improvements are far superior to those of any method I have seen thus far in the treatment of general paralysis. I formerly advocated and used nonspecific protein therapy quite

extensively by the spinal route, but I am now making use of the method here presented, my attention having been called to it by Dr. Hall sometime ago. I found the method simple, devoid of time consuming manipulations and free from those undesirable symptoms so frequently encountered in lumbar subarachnoid injections. I would ask Dr. Hall to explain, if he can, how the results are brought about. Is it because of the febrile reaction, or is it because of the leukocyte rise? Excessive heat is known to retard micro-organismal function. Or is the foreign body invasion a means of awakening the inner inert protective bodies to an extremely destructive situation?

DR. W. F. LORENZ, Madison, Wis.: We have yet to determine what the mechanism is that seems to restore patients with general paralysis when treated by malarial inoculation, tryparsamide, or other forms of therapy, and this nonspecific protein. This effort, to my mind, should be carried on over a considerable period of time in order that one may be able to evaluate this therapeutic effort in relation to the others. At Wisconsin we have been primarily interested in tryparsamide but not to the exclusion of other methods of therapy. We have employed malarial inoculations and, in general, while we have not yet made a comparative study, I get the impression that approximately the same type of cases respond; that is, the same clinical entity responds to malaria and tryparsamide, and, I dare say, the same thing will hold good, in a measure, for nonspecific protein. I do not believe that fever is essential because with tryparsamide therapy one does not get any febrile reaction. I do not believe, further, that the leukocytosis is essential because again with tryparsamide one does not get a leukocytosis. However, it is possible that none act specifically, but that these measures in some way or other create a mechanism that causes a resolution of certain lesions—that is, that transudation, perivascular infiltration, and possibly many other things may bring about such resolution—and that we are not dealing with truly specific drugs or remedies.

DR. GEORGE W. HALL, Chicago: We do not know how frequently the series of treatment should be repeated, but we did give a second series within two months following the first treatment in one or two cases. As to the rise in temperature, mentioned by Dr. Robie, there is no reason why one cannot obtain a temperature of 105 F. with this method just the same as with malaria, and the interesting thing about this work, if it is of any value at all, is that these patients are up around the ward on the day when they do not get their treatment; they are helping in the ward; they are not sick, ready to die, as are those with malaria. They apparently regain everything they lose on the day of the treatment. That is a very important factor; consequently, we can continue the chills rather indefinitely.

I am unable to see any reason why we could not give these patients thirty chills, if we so desired. But there may be something lacking, as Dr. Lorenz has mentioned. I am willing to admit that possibility because of the fact that we are approaching the treatment in different ways and yet different workers are getting apparently similar results. I have avoided giving any statistics as to remissions because we have no right to make any positive statements, although it has been stated in the paper that our remissions are rather large. However, we do not know how long those remissions will last, so we are not willing to go on record as to that point.

Many men are reporting good results from the use of tryparsamide. I have had occasion to talk with a few of the specialists in different parts of the country and some of them are very enthusiastic about tryparsamide, perhaps justifiably so. Dr. Lorenz has brought out a very important fact. We know that we get a certain percentage of remissions in these cases without any treatment at all. We know that our most favorable remissions are in those cases that exhibit a certain amount of euphoria. In a few instances, however, we have been able to obtain apparently good results in a few deteriorated cases, but, as a rule, the treatment is a disappointment in those cases.

OVARIAN THERAPY

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It is a matter of keen disappointment to clinicians that the new knowledge gained by science of the function and properties of the female sex hormone has not led to a more effective therapy. But as Novak [1] well points out, the clinician expects some brilliant specific panacea that will cure every functional disorder to which the complex female pelvic mechanism is heir.

There are numerous reasons why ovarian substance, at least in its present therapeutic form, should be comparatively nonpotent. In the first place the incretory power of the ovary in the normal adult woman is directed chiefly to the pelvic organs for purposes of reproduction, and has little to do with the other functions of her general organism. This is shown by the comparatively small harm that is done by the removal of the secretion. The ovary is not an organ of the same vital significance as the suprarenals, the hypophysis and the thyroid, nor are its extracts as toxic as those of other ductless glands. Not only do ovarian preparations have little influence on the general organism but even in their proper field of the genital system they are comparatively inert. One should not, as a matter of fact, expect too much of a substance which in the performance of its natural function leads such a constantly changing existence. As Fraenkel [2] says, the ovary, in contrast to the other endocrine glands, all of which exercise a stable function, is in a continual state of transformation. In one phase it stimulates hyperplasia and bleeding while at another time in the month its action may be quite the contrary. Commercial extracts, therefore, prepared from many ovaries in different phases must necessarily possess complex and varying potencies, a fact that is sufficiently well demonstrated by the familiar inconstancy of their therapeutic action.

As the chemical composition of the hormone is only partially known and has not been isolated in its pure state, the processes of extraction have necessarily not been perfected. Frank [3] criticizes the commercial preparations on the ground that most of them are "degreased" or "defatted," thus depriving them of those lipoid elements with which the hormone is closely combined. Moreover, it must be remembered that whereas in the body the ovarian secretion passes directly into the circulation, ovarian therapy when administered orally requires that the substance pass through the digestive apparatus, so that a chemical disturbance in the secretion, amounting possibly to destruction, is inevitable. Novak [1] also calls attention to the inefficacy of the watery extracts dispensed in ampules and ascribes their popularity either to a psychic element or to the presence of protein factors that stimulate glandular structures generally.

For the foregoing and doubtless many other reasons, ovarian organotherapy has made but little advance in the many years during which it has been employed. The subject is at present in a state of confusion and flat contradictions. Some competent observers go so far as to deny that the commercial preparations of the

1. Novak, Emil: The Pharmacology of Ovarian Preparations, J. A. M. A. 83: 2016 (Dec. 20) 1924.
2. Fraenkel, L.: Biologie and Pathologie des Weibes, 1923, part 4, p. 588.
3. Frank, R. T.: The Ovary and the Endocrinologist, J. A. M. A. 78: 181 (Jan. 21) 1922.

ovary have any appreciable therapeutic value whatever. Many clinicians, on the other hand, who have long employed them, such as Novak,[1] Fraenkel[2] and Lisser,[3] and many others among whom I include myself, agree that in the treatment of the vasomotor disturbances of the menopause, ovarian substances are distinctively though not constantly efficacious. I agree with Lisser[4] that the word "gland" has a magic effect on the imagination of women of the modern feminist school, but after discounting the psychic effect which undoubtedly plays a part in some cases, the foregoing statement is supported by clinical evidence that cannot well be disregarded. If ovarian substance is proved to be of marked value only in the single instance of treating menopausal symptoms—and in my experience it acts in this respect almost as a specific—ovarian organotherapy hardly deserves the ridicule that has been heaped on it.

Lisser[4] conveniently classifies glandular preparations in three groups according to their practical usefulness. In class A he includes "those endocrine extracts which are standardized, strongly potent, uniformly reliable and specific, and which, when properly administered under appropriate circumstances, will yield consistent and convincing results." Inclusion in this class postulates that the extract shall supply specifically the deficiency of the normal incretion. The only glandular extracts with class A honors are thyrotoxin for myxedema and insulin for diabetes mellitus. The admission of solution of pituitary to this class hangs on the decision as to the pituitary origin of diabetes insipidus.

Ovarian preparations have obviously not won a place in class A, but Lisser justly assigns them to class B on account of their near-specificity in the treatment of menopausal symptoms. Class B is described as including "those endocrine substances which in the hands of trustworthy clinicians have produced remarkable improvement in specific deficiency syndromes, where the favorable response to the gland administered seems incontrovertible; but where such satisfactory results have not occurred with sufficient dependability or consistency to justify placing the extracts in class A."

But ovarian substances have been called on for service in many fields other than that of the menopause, and in these fields they have either shown only questionable usefulness or have signally failed. For this reason ovarian therapy has suffered greatly in reputation. Of the many conditions other than the menopause for which it is employed, I shall mention only those which have a more or less logical basis for its use. They are: deficiencies of menstruation, sterility, abnormal uterine hemorrhage, and dysmenorrhea. Other indications are so haphazard and far fetched in their rationale that they may be safely ignored.

In estimating the therapeutic results of a drug like ovarian substance it must be recognized that conclusions are based purely on clinical empiricism, which is in no sense an exact scientific method of research. It is open to innumerable sources of error when there are no laboratory tests by which the course of the disease may be accurately measured, as in diabetes and myxedema. Thus, in judging the results of ovarian therapy on subjective symptoms such as those of the menopause, one must consider not only the psyche of the patient but that of the physician, especially if he is of an enthusiastic temperament. The possibility of spontaneous improvement irrespective of the drug, and the influence of other factors, inherent and environmental, many of which are more potent than the medication itself, must be taken into account. In cases in which the results sought are objective, as in sterility and menstrual disorders, coincidence and extraneous influences lead to many false conclusions. Bearing these sources of error in mind, I shall discuss briefly the other indications for ovarian therapy which in my opinion have some logical basis.

4. Lisser, Hans: Organotherapy: Present Achievements and Future Prospects, Endocrinology **9**: 1 (Jan.-Feb.) 1925.

MENSTRUAL DEFICIENCIES

Defective menstruation is commonly classified as (1) amenorrhea (absence of menstruation), (2) hypomenorrhea (scanty flow), and (3) oligomenorrhea (delayed or infrequent menses).

Permanent amenorrhea may be due to certain systemic diseases, such as tuberculosis or grave anemia. Most commonly it is a manifestation of a genital hypoplasia or regression and is associated with other changes suggestive of a pituitary origin, such as adiposogenital dystrophy. In these cases the counteracting influence is obviously something deeper seated and more powerful than a simple ovarian deficiency, and the failure of so feeble a drug as the present commercial ovarian preparations is a foregone conclusion. In the temporary functional amenorrheas, oligomenorrheas and hypomenorrheas, especially if there is no marked genital hypoplasia, it is quite reasonable to expect benefit from ovarian treatment. The effect that extracts of the female sex hormone have in reproducing the normal estrual changes in the vagina and uterus of spayed animals, an effect so distinctive and constant that it is used as a laboratory test for the presence of the hormone,[5] leads one to suppose that similar reactions should be evoked in human organs. As a matter of fact, many of us who have used ovarian drugs extensively have frequently noted successful results after ovarian therapy in these cases for which, after discounting the possible errors, we are convinced that the ovarian substance was responsible. These results hardly warrant us in placing the ovarian substance when used for menstrual deficiency in class B, but we do feel that we are not stretching our conscience in awarding it a grade of B minus or perhaps a C plus in Lisser's marking system.

ABNORMAL UTERINE BLEEDING (FUNCTIONAL)

In dealing with abnormal uterine bleeding, the logical indication of ovarian therapy is much less clear. The exhibition of extracts from one and the same organ for two such opposing conditions as amenorrhea and menorrhagia has to the uninitiated always been a puzzle. It has long been assumed that the ovarian hormone influences ovulation and precipitates menstruation. On the other hand, Fraenkel and his school teach us that the corpus luteum inhibits menstruation and ovulation. They say that when impregnation occurs the corpus luteum persists in order to prevent menstruation and to preserve the endometrial soil for the nesting of the egg. If impregnation does not occur, the inhibiting influence of the corpus luteum is released and the flood-

5. Frank, R. T., and others: The Occurrence and Present Chemical Status of the Female Sex Hormone, Endocrinology **10**: 260 (May-June) 1926. Frank, R. T.: Function of the Ovary: A Résumé, Am. J. Obst. & Gynec. **12**: 585 (Oct.) 1926. Allen, Edgar; and Doisy, E. A.: An Ovarian Hormone, J. A. M. A. **81**: 819 (Sept. 8) 1923. Allen, Edgar; and Doisy, E. A., and others: The Extraction and Some Properties of an Ovarian Hormone, J. Biol. Chem. **61**: 711 (Oct.) 1924.

gates of menstruation are let loose. An attempt has been made to show that the ovary manufactures at least two hormones, one of which stimulates the growth of the genitalia and increases menstruation, the other being inhibitory. Experimental evidence to support this view is not convincing. The theory of a dual or triple ovarian hormone has been discredited to a great extent by the work of Frank [5] and his collaborators, Allen and Doisy,[5] Zondek and Aschheim,[6] and others. They have demonstrated the presence of the female sex hormone in the follicles, corpus luteum, circulating blood, menstrual blood and the placenta, and have shown that the hormones extracted from these localities are identical in their properties. Zondek [6] sums up his observations on the subject by saying: "There is only one ovarian hormone that embraces all the hormonal functions" (Es giebt nur ein Ovarialhormon, das alle hormonalen Functionen auslöst).

Wintz [7] and Seitz and Fingerhut have compared the hormone activities of the fresh and matured corpus luteum. From the fresh organ they have extracted a substance, lipamin, which stimulates menstruation, while from the full-blown corpus luteum they find a substance, luteolipoid, which inhibits menstruation. The apparent reverse action of the hormone in the young and the old corpus luteum is explained by Wintz not as a specific change in the hormone itself but by the fact that in the luteolipoid preparation there are split protein products which exert the luteolipoid action. All these conflicting theories leave us very much in the dark as to the specific action of the corpus luteum hormone, and until the question can be settled we must fall back on clinical experience as our guide. We have never been successful in treating uterine hemorrhages with glandular preparations and have long since discarded them. Abnormal uterine bleeding demands immediate diagnosis by biopsy, and as a rule, even if it is functional, more radical treatment than that of drugs.

DYSMENORRHEA

What has been said about the relationship of ovarian therapy to deficient menstruation applies to dysmenorrhea. Essential dysmenorrhea is for the most part a manifestation of defective development. There is usually an obvious underdevelopment in the uterus itself. If the proper evolution of the pelvic organs is due to the integrity of an ovarian secretion, the defect in the uterine structure would naturally suggest a defect in the ovarian apparatus; but this is by no means always the case. Normal ovaries may be found in association with extreme hypoplasia of the müllerian tract, even one amounting to rudimentary traces. Since ovarian treatment is incapable of altering the development of the genitals of a matured woman, it is not to be expected that it will have much effect on the dysmenorrheic pain of a hypoplastic uterus. The pain of essential dysmenorrhea is located in the uterus, probably at the internal os, which is usually anteflexed and is the result of the spasmodic contractions of an abnormally formed or placed muscular structure.

I have had in my practice, however, numerous cases of essential dysmenorrhea in which pain is consistently relieved after the administration of ovarian therapy. Most of these patients have been girls between 18 and 25 years of age, usually of nervous type, in whom there have been but slight signs of uterine hypoplasia. It is impossible to tell whether the effect of treatment in these cases is psychic or coincidental, or whether there are certain particularly favorable cases of essential dysmenorrhea which the drug actually does influence in some beneficial but unknown way. The fact that many of these patients return repeatedly for more of the substance over long periods of time is suggestive but not conclusive evidence of a specific benefit.

Dysmenorrhea in its broader sense means difficult menstruation. Essential dysmenorrhea relates to the purely functional disturbance and excludes those acquired pathologic conditions, the pain of which appears or is accentuated at the period of menstrual congestion. Essential dysmenorrhea usually implies spasmodic, cramplike pains emanating from the uterus. But, strictly speaking, it includes certain other molimінal symptoms that may be associated with the typical pain or that may occur independently with little or no uterine pain. These other manifestations consist of general abdominal discomfort, indigestion, nausea with or without vomiting, headaches, nervousness, dizziness and flashes, all suggestive of an analogy to menopausal symptoms. For these symptoms I have for many years prescribed ovarian substance with sufficient apparent success to persist in the treatment as a routine measure. The effects following treatment for these conditions approach but do not equal those attained in the treatment of the menopause. My observations, unpublished, have received encouraging support in the report of Sharlit, Corscaden and Lyle.[8]

STERILITY

The causes for sterility are legion, most of them being of a mechanical or pathologic nature. But there are undoubtedly cases in which sterility is due to functionally defective ovulation. Just what is the nature of the *vis a tergo* which precipitates the rupture of the wall of the matured follicle and the discharge of the egg is a matter of speculation, but it is generally believed that the ovarian hormone plays at least a part in stimulating the process. It is therefore reasonable enough to suppose that in certain cases in which the inherent function of the ovary is inadequate to overcome the resistance of the follicle wall the aid of an artificial supply of hormone may be sufficient to accomplish the result. Reports in the literature of the successful use of ovarian therapy for sterility are few. It will be found, however, that those who use it extensively not infrequently observe a following pregnancy that strongly suggests a causal effect on the part of the extract. If these cases were collected, they would probably make an impressive showing. The chances of drawing wrong conclusions are so great, however, that no one is justified in making a didactic statement on the subject. It is safe enough to say that there is a possibility that in some cases ovarian therapy cures sterility, and that the evidence in favor of this possibility is stronger than that which denies it.

It should be added that some clinicians (Sajous,[9] Solomons,[10] Hirst [11]) have reported pregnancies in previously sterile women which they have attributed

6. Zondek, B., and Aschheim, S.: Zur Funktion des Ovariums, Klin. Wchnschr. **5**: 400 (March 5) 1926.
7. Wintz, A.: Die physiologisch-chemische Wirkung des Follikelsaftes, Arch. Gynäk. **113**: 457, 1920.
8. Sharlit, Herman; Corscaden, J. A., and Lyle, W. G.: Symptoms Associated with the Menstrual Cycle and the Effects Thereon of Ovarian Therapy, Am. J. Obst. & Gynec. **10**: 246 (Aug.) 1925.
9. Sajous, L. T. M.: The Corpus Luteum in Therapeutics, New York M. J. **103**: 227, 1916.
10. Solomons, B.: Sterility, Surg. Gynec. Obst. **30**: 173 (Feb.) 1920.
11. Hirst, J. C.: The Use of Corpus Luteum Extract Hypodermically in Cases of Repeated Abortion Without Demonstrable Cause, Am. J. Obst. **77**: 662 (April) 1918.

to the effect of corpus luteum administration. I have had one such suggestive case. As we have seen, there is much evidence that the corpus luteum in its normal habitat inhibits menstruation and ovulation, and that its persistence causes sterility (Beard,[12] Prenant,[13] Loeb,[14] Ochsner,[15] Hess,[16] Williams[17]). If it is assumed that the corpus luteum does in some cases cure sterility, a curious inconsistency presents itself. The biologic explanations of this contradiction are ingenious but not clear. It would seem that one of three alternatives must be chosen: first, that the corpus luteum preparations cannot really cure sterility (possible); second, that the theory of corpus luteum inhibition is wrong (improbable), and, third, that the corpus luteum contains complex varying elements, hormonal and otherwise, about which little is known (probable).

As to the different ovarian preparations there is much contradictory evidence. I shall treat the subject by giving my own experience. I began using desiccated corpus luteum for menopausal symptoms many years ago when the drug was first exploited. I was encouraged by an occasional success but found the preparation unreliable and often productive of digestive disturbances. I then employed the whole ovary with distinctly better results. On account of this obvious improvement it occurred to me to eliminate the corpus luteum altogether and try the remaining ovarian substance. The clinical results from this preparation were strikingly more uniform than from the other two. At that time the portions of the ovary that remained after removal of the corpus luteum were thrown away as useless. Preparations from it could therefore be furnished at low cost and were designated by Parke, Davis & Co., who were preparing the material for me, as the "ovarian residue." I published a report of my results in 1917.[18] In recent years I have employed the residue almost exclusively and in large amounts. I secure the substance put up in capsules directly from the manufacturer (now Hynson, Westcott & Dunning) to insure its being fresh. The commercial preparation in tablet form I have found to be of little value. My explanation of the comparative failure of corpus luteum preparations was that at certain stages the corpus luteum is effete, functionless, and in the process of disintegration. In the indiscriminate collection of these bodies, there must be many that are inert, perhaps even toxic; hence their effectiveness must be inconstant. There was at that time sufficient theoretical evidence that the follicles produce an active hormone, the elaboration of which I thought must be more uniform than in the changing corpus luteum. I at first used the residual ovarian tissue of pregnant pigs, on the theory that follicle atresia is more active during pregnancy. It afterward became impossible to secure the ovaries of only pregnant animals. There was, however, no particular change in the results with nonpregnant and pregnant ovaries combined.

The foregoing explanation based purely on empiric clinical evidence was criticized as unsound. Recent experimental work on the localization of the sex hormone lends confirmation to my results. Allen and Doisy,[5] in their earlier experiments, were unable to demonstrate any hormone in the pig's corpus luteum. Frank[5] showed that it would produce the vaginal reaction in mice only in intense concentration. He furthermore pointed out that only in one stage, namely, at the beginning of retrogression, does the corpus luteum store the sex hormone. My early observations that corpus luteum extracts were sometimes toxic have been verified by experimentalists (Frank,[19] Livon[20]) who described toxic effects following the intravenous and intraperitoneal injection of corpus luteum extract, such as dyspnea, convulsions, and death (Kennedy[21]).

Moreover, my contention that the ovarian substance should theoretically be more stable than the corpus luteum has received further confirmation from the recent work of Frank, who was the first to demonstrate the sex hormone in the follicle liquid. In contrast to the corpus luteum, he finds the follicle hormone highly potent even in the pure unconcentrated state. His observations have been amply confirmed by others.

I conclude, therefore, that for gynecologic purposes, with the exception of abnormal uterine bleeding, ovarian preparations devoid of the corpus luteum or at least those which include the whole organ with its follicle apparatus, are the rational choice.

Whatever the type of preparation used, there is no doubt that it must be used in a comparatively fresh state in order to be potent. It is interesting to note in the literature dating from the earliest articles that the majority of those who report success in the treatment have secured their drugs directly from the manufacturer.

CONCLUSIONS

1. Ovarian substance is a near-specific in the treatment of hot flashes and the vasomotor disturbances of the menopause.

2. It is ineffective in permanent amenorrhea with hypoplasia, but is useful in certain conditions of menstrual deficiency.

3. It is ineffective in the treatment of menorrhagias and metrorrhagias.

4. It is occasionally useful in cases of essential dysmenorrhea not associated with marked hypoplasia, and is frequently successful in treating the moliminal symptoms of dysmenorrhea.

5. In the treatment of sterility, instances of pregnancy following ovarian therapy are sufficiently common to suggest that in certain cases of deficient ovulation ovarian therapy may effect a cure.

6. Preparations of the whole ovary or the ovarian residue are more efficacious than those of the corpus luteum alone, since they contain the more highly potent hormone from the follicle apparatus and are free from the toxic and inhibitory elements that contaminate the corpus luteum.

7. Fresh gland preparations are imperative.

8. There is sufficient clinical and experimental evidence to encourage the hope that ovarian extracts, now admittedly feeble and inconstant in their action, will under the direction of research be produced of such potency as to be of constant specific value in the treatment of a limited number of functional pelvic disorders.

198 Commonwealth Avenue.

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15. Ochsner, E. H.: Surg. Gynec. Obst. **31**: 496 (Nov.) 1920.
16. Hess, E.: Die Sterilität des Rindes, Hanover, 1921.
17. Williams, W. L.: Veterinary Obstetrics, Ithaca, 1917.
18. Graves, W. P.: Ovarian Organotherapy, J. A. M. A. **69**: 701 (Sept. 1) 1917; Gynecology, ed. 3, p. 67.
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INCREASING MORTALITY FROM HEART DISEASE

SUGGESTIONS AS TO PROBABLE REASONS *

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Mortality statistics indicate that the number of deaths from heart disease is distinctly on the increase. Thus, in the registration area of the United States, the deaths per hundred thousand of population from diseases of the heart increased from 132 in 1900 to 185.5 in 1925.

Several explanations have been suggested to account for this increased mortality from cardiac disease. The more important of these are:

1. The increase in the number of persons who live long enough to attain the "heart disease" age, or the time of life when deaths from the disease are much more frequent than earlier in life. Deaths from heart disease occur chiefly after the age of 45. This is because the most important single factor associated with such deaths is arteriosclerosis. It is apparently responsible for about 40 per cent of the cases.

A greater percentage of persons than ever before are now attaining the age of 45 years and over. Since the life expectancy of a person born in 1926 was 59 as compared with 49 for one born in 1901, it is apparent that many more persons are now attaining the "heart disease age" than was the case twenty-five years ago.

This factor would not be so important or of such special significance were it not for the fact that more persons attaining a given age, especially after 45, succumb to heart disease now than twenty years ago. After the age group of 35 to 44, the increase of deaths from heart disease in 1920 as compared with 1900 is progressively higher for specific age groups, until at the age of 75 and over the figures for 1920 are more than double those of 1900 (chart 2).

2. Decrease in number of deaths from infectious diseases. During the last fifty years there has been a rather marked reduction in the number of deaths from infectious diseases. This is especially true of diphtheria, scarlet fever and tuberculosis. During the same time there has been a progressive increase in the number of deaths from heart disease.[1]

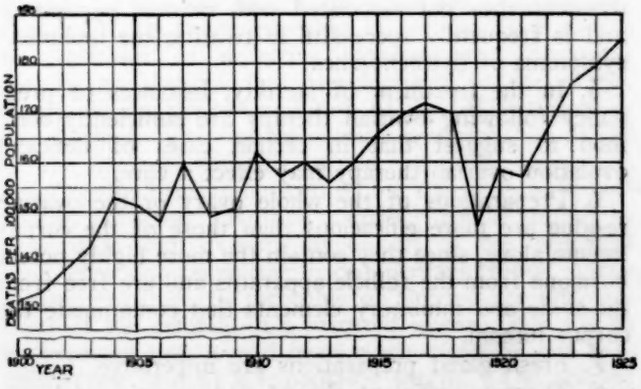

Chart 1.—Diseases of the heart: death rate per hundred thousand of population in the United States registration area, 1900-1925; it was increased from 132 in 1900 to 185.5 in 1925.

Chart 2 illustrates the change that has taken place in the death rates from tuberculosis and heart disease by age groups during the twenty years following 1900.

It will be noted that, for the age group of 55 to 64, the death rate from tuberculosis in the registration area of the United States was reduced from 225 per hundred thousand of population in 1900 to 131 in 1920, whereas the death rate from heart disease was increased from 350 in 1900 to 472 in 1920.

One reason that has been given for the increase in the mortality of heart disease in a given age group is that, when an advanced age has been attained, a certain proportion of the population is likely to succumb to "some" disease. If, during the course of years, the death rate per given age group from one or several diseases has been reduced, persons attaining that age group are more likely to die in increasing number from some other disease. With advancing years, many of the cases of the "some other" disease are likely to be cardiac diseases, especially since heart disease now heads the list of causes of deaths in the United States.

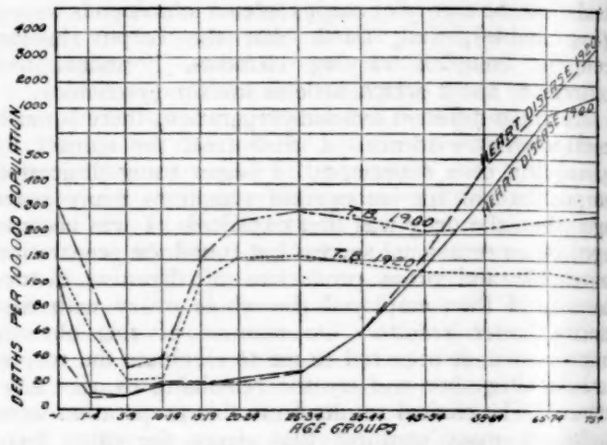

Chart 2.—Heart disease and tuberculosis: death rates per hundred thousand of population, states in registration area in 1900; comparison by age groups, 1900-1920. During the twenty years since 1900, there has been a marked decrease in the death rate from tuberculosis. This has affected all age groups, but more especially the higher ones. During the same time there has been an increase in the death rate from heart disease. This has affected almost only the higher age groups. Because of the change in the scale representing the "deaths per hundred thousand population," the lines representing the deaths from heart disease in 1900 and 1920, respectively, do not represent the marked difference that has actually occurred in the higher age group when compared with the lines representing the difference in the death rates for tuberculosis.

3. Old age. There are those who would ascribe the increase in heart disease in recent years to a normal senescent process. Chart 2 clearly indicates that during the twenty years after 1900 the number of deaths from heart disease in persons under 35 remained at practically the same level. The increase occurred chiefly in the older age groups. The etiologic type of heart disease at these higher ages is chiefly the arteriosclerotic.

Although arteriosclerosis occurs chiefly in old age, it is scarcely proper to regard arteriosclerosis as a normal senescent process. There are too many cases of the disease in middle life; many old persons are without arteriosclerosis, and the condition is too definitely associated with fairly well known causes to be regarded as a normal old age process. This factor may, however, to a slight extent, account for the increasing death rate from heart disease.

4. Increase in the proportion of the population injured by certain infectious diseases. A preliminary note regarding this explanation was made by me in a

* From the Iowa State Department of Health.
* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Cohn, A. E.: Heart Disease from the Point of View of the Public Health, Am. Heart J. 2:275 (Feb.) 1927.

recent article.[2] This explanation offers great hope for a reduction—possibly a considerable one—in the number of cases of this disease in the course of the coming years.

It is well known that cardiac disease is in large part the result of injury to the heart by an infection which occurred some or, indeed, many years previously. There is at the present time probably a greater proportion of our population which has been maimed by scarlet fever and probably also by many other diseases, including rheumatic fever and syphilis, than there was ten or twenty years ago.

Chart 3 presents the average of the available morbidity and mortality rates from scarlet fever per hundred thousand of population for Connecticut, Kansas, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Jersey, New York and Pennsylvania, for the years from 1906 to 1926.

It will be noted that whereas there has been a slight increase in the case or morbidity rate of that disease since 1906, there has been a decided decrease in the death rate since that time. In 1906 the morbidity rate was 112, whereas it was 268 in 1926. On the other

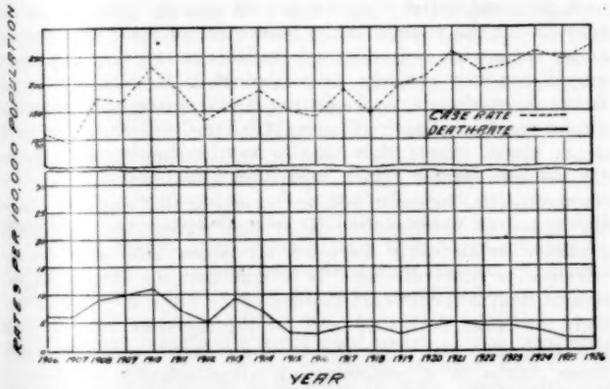

Chart 3.—Scarlet fever morbidity and mortality rate per hundred thousand population in ten states from 1906 to 1926. Case rate increased from 112 in 1906 to 268 in 1926; death rate decreased from 6 in 1906 to 2 in 1926; fatality rate decreased from 5.3 per cent in 1906 to 0.74 per cent in 1926.

hand, the mortality rate has shown a steady decrease from 6 per hundred thousand of population in 1906 to 2 in 1926. The fatality rate has accordingly been reduced from 5.3 per cent in 1906 to 0.7 per cent in 1926.

This means (chart 4) that whereas in 1906 there were 106 out of every 100,000 persons living in the ten states under consideration who survived an attack of scarlet fever that year, in 1926 there were 265 persons per hundred thousand of population who survived.

Many of those who survive an attack of scarlet fever are more or less maimed by it. The injury done may not become apparent until twenty or more years later, when it may reveal itself in the form of disease of the heart, kidneys or other organs. It is rather immaterial for the purpose of our consideration whether the decreasing fatality rate from scarlet fever is due to a more mild form of the disease or to more effective medical treatment, or to both.

In 1926 the proportion of the population that was presumably injured by scarlet fever in that particular year was 150 per cent higher than in 1906 (chart 4). In view of the fact that the increase in the number of maimed has been progressively higher for almost every year during that twenty year period, the cumulative increase is indeed very great.

It may be contended that only a small proportion of the deaths from heart disease are due to scarlet fever. That may be true so far as we know. Who knows, however, but that scarlet fever may be a factor in the production of that larger—arteriosclerotic—group of heart disease.

Acute rheumatic fever causes presumably about 25 per cent of all deaths from heart disease. What has been said about an increasing proportion of the popu-

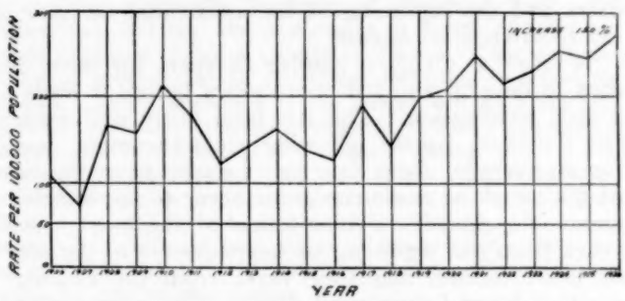

Chart 4.—Scarlet fever: number of persons injured (number of cases that did not prove fatal) per hundred thousand of population, ten states, 1906-1926. This chart is based on the figures made available by chart 3. In 1906 there were 106 out of 100,000 persons living who survived an attack of scarlet fever. The number that thus survived, and consequently were subject to more or less injury by the disease, has gradually increased since that time until in 1926 it was 266—an increase of 150 per cent.

lation being maimed by scarlet fever applied equally well, but probably to a somewhat less extent, to acute rheumatic fever. Unfortunately, the morbidity records of acute rheumatic fever are very unsatisfactory. This is due to the fact that acute rheumatic fever has not been a reportable disease, except in a few places and for only a rather short period of time. Perhaps the most satisfactory available figures are the British.[3] According to these, the morbidity rate for acute rheumatic fever per hundred thousand persons was 149 in 1906 and 132 in 1922, showing a slight decrease.

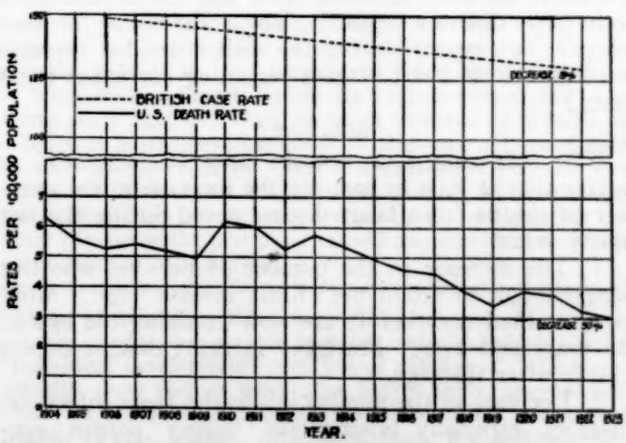

Chart 5.—Acute rheumatic fever: comparison of the morbidity rate (British) and the death rate of the United States registration area per hundred thousand of population, 1904-1923. The death rate from acute rheumatic fever has apparently decreased more rapidly than the case rate. The chart tends to show that there was a greater proportion of the population which survived an attack of acute rheumatic fever in 1922 than there was in 1906. On the assumption that all who survived suffered more or less injury, and since such injury is often in the form of heart disease, it is quite probable that this may partly account for the increasing mortality from disease of that organ.

On the other hand, according to the reports for the U. S. registration area, there has been a rather marked

2. Albert, Henry: The Increase in Heart Disease, J. A. M. A. 88:2021 (June 25) 1927.

3. Compiled from Reports on Public Health and Medical Subjects, Ministry of Health, number 23, 1924, pp. 64-65, as reported by Cohn, A. E.: Am. Heart J. 2: 294 (Feb.) 1927.

decrease in the mortality rate for this disease. The rate per hundred thousand of population was 6.3 in 1904, and only 3.0 in 1923.

If these figures may be used as a basis of comparison, it is quite apparent that at the present time more persons are being maimed by acute rheumatic fever than was the case twenty-three years ago. The maiming by acute rheumatic fever consists chiefly of heart disease.

This "maiming" theory possibly finds further substantiation in the figures representing the beginning of the real decline in the death rate from infectious diseases and the beginning of the substantial increase in deaths from heart disease.

It takes, as a rule, a number of years for heart disease to develop and still more years before it leads to a fatal termination. This has been fairly well worked out for heart disease following acute rheumatic fever. On an average, about four years elapse from the time of the attack of acute rheumatic fever to the establishment of a chronic valvular lesion of the heart; seven years from the beginning of heart disease to the onset of heart failure, and four years from the establishment of heart failure until death. This represents an average period of fifteen years from the attack of acute rheumatic fever till death from the resulting heart disease.

In this connection, it is interesting to note a striking observation made by Cohn.[1] He calls attention to the fact that the high point in the combined death rates from infectious diseases occurred in 1881, and that the "foot point" of the rise in the death rate from chronic circulatory diseases occurred seventeen years later, i. e., in 1898. He states that he is "at a loss to suggest a proper explanation for the occurrence of exactly this interval." Of course, the decrease in the death rate from infectious disease after 1881 had the effect of saving many persons for the time being, who died later of heart disease or of some other condition. May it not also be that the increase in the number of persons maimed, due to the decrease in the death rate from infectious diseases beginning about 1881, may at least in part be responsible for the rather decided increase in deaths from heart disease beginning seventeen years later?

SUMMARY

The following four reasons may be suggested as accounting at least in part for the increase in the number of deaths from heart disease noted during the last thirty years.

1. The increase in the number of persons who live long enough to attain the "heart disease" age. More persons than ever before are now attaining the age of 45 years and over. Mortality in heart disease occurs chiefly after that age.

2. Decrease in the number of deaths from infectious diseases, especially tuberculosis. Every person succumbs to some disease, accident or old age. If, during the course of years, the death rate per given age group from certain diseases is reduced, persons attaining that age group are more likely to die in increasing numbers from some other disease. With advancing years, many of the cases of the "some other" disease are likely to be heart disease.

3. Old age, which may account for a slightly increasing number of cases that may properly be regarded as resulting from a normal senescent process.

4. Increase in the proportion of the population "maimed" by certain infectious diseases. Heart disease is in large part the result of injury to that organ by an infection which occurred some or, indeed, many years previously. Whereas the morbidity rate for scarlet fever and probably also acute rheumatic fever is practically the same today as it was twenty or more years ago, there has been a decided reduction in the mortality rate. Many of those who survive an attack of scarlet fever or acute rheumatic fever are more or less maimed by it. On that assumption, there is now and has been for some years past an increase in the proportion of the population which has been "maimed" by conditions likely to lead to heart disease.

It cannot be said that any of the four reasons here given have been definitely proved to be a cause of the increasing death rate from heart disease. It is hoped, however, that this presentation will stimulate others to more intensive study, with the idea of proving or disproving the assumptions herein contained, and of determining more definitely the importance of the several factors suggested.

ABSTRACT OF DISCUSSION

DR. HAVEN EMERSON, New York: I can only express my own personal belief that we are as grossly ignorant of the reasons for the change in the movement of heart disease now as we were with regard to tuberculosis twenty-five years ago, and I am not entirely convinced that the change in the fashions of diagnostic reporting and registration of deaths might not be brought in to explain the entire alteration in death rates. But I have one or two comments to make on Dr. Albert's paper. With regard to arteriosclerosis and the strenuous life, I cannot find any evidence that anybody knows the cause of arteriosclerosis or has shown any reasonably probable relationship between strenuous life and arteriosclerosis or heart disease. It is true that the largest proportion of deaths from heart disease occur after 40 years of age, both for New York City and for the registration area. It is probably also true that the etiologic factor associated with these deaths is hypertension or arteriosclerosis in those of the later decade. We tabulated the mortality rate per hundred thousand in the first ten registration states. From a study of these curves, it seemed that being saved from infectious diseases preserves the population for exposure to death from chronic heart disease. Furthermore, to me there seems to be little support in this country or abroad for the statement that the attack rate of scarlet fever has risen while the death rate from this disease has fallen. As to rheumatic fever, we have some evidences from our general hospital experience that there has been a diminution in the percentage of all patients admitted to hospitals who are admitted for acute rheumatic infection. Whether we are going through one of those periodic reductions in rheumatism which was observed in Norway, I cannot say, but it is obvious that rheumatism may express itself in short and long time epidemic waves. Available evidence shows that patients with heart disease of the rheumatism variety do not, as a rule, live beyond the age of 40. In the Bellevue Clinic, Dr. Wyckoff has found that syphilis is an etiologic factor in less than 10 per cent of the whole group of cases minutely studied (1,700). It does not seem that the total deaths from this form of heart disease and the relatively infrequent occurrence of syphilitic heart disease after 50 could bear much of the responsibility for the very high cardiac death rate after the age of 40. The point, briefly, that I would make is that when we are dealing with the age group that dies of heart disease after 50 we are dealing primarily with arteriosclerosis; that there is no agreement, clinically or pathologically, in this country or abroad, as to the cause of arteriosclerosis; and to assume that the main cause of arteriosclerosis which expresses itself in deaths from heart disease after 50 is due to problematic toxins acquired by the organism from infectious diseases in infancy and youth is going a good deal further than the statistical evidence justifies at present.

DR. L. F. BISHOP, New York: A committee of the New York State Medical Society is supposed to report in the course of a year or so in answer to this question, so naturally we are interested in it. My own impression as one who has dealt exclusively with heart disease for a long time is that Dr. Albert is about right in his conclusion. I do not believe that there is any greater tendency to heart disease than there ever was. I believe that the change is due to the relative relation of heart disease to other conditions. The question of fashion in reporting deaths came up, and the solution that I suggested was that we should study a number of death certificates from the records in New York City of twenty years ago and another group of death certificates of last year, carefully, critically and individually, to try to determine the mental processes of the physicians who made them out. It may prove that some of this recent reporting of heart disease is a matter of the mental reaction of the physician to the case. No one who has been in medicine a long time, and particularly in hospital work, can fail to realize that a great many death certificates are made out very carelessly. They are made out by interns. The house physician is out and the junior is on duty; when a patient dies in the ward, and the undertaker is waiting for the body, the intern hurriedly makes out the death certificate. The death certificate so made out becomes a part of the permanent records of the city and forever goes into statistics. Therefore I think that the careless making out of death certificates has a lot to do with the unreliability of mortality statistics, but I think conditions are much better than they used to be. The matter of fashion in making reports and the elimination of other causes has a great deal to do with the apparent increase in the tendency to heart disease. A few years ago it was considered rather a disgrace to have heart disease. The family physician concealed heart disease from all his patients as much as he could, and it was sub rosa. Now, heart disease has become more or less fashionable. It is talked about and it is no disgrace to have heart disease, so there is much more freedom in reporting deaths from heart disease than there used to be. Even now, however, a heart specialist must conceal the names of his patients if they are in any way connected with important business. There is no doubt that acute articular rheumatism is less abundant than it used to be. I can remember a few years ago when, in the spring of the year, half of our wards were half filled with patients with acute articular rheumatism.

DR. EUGENE L. FISK, New York: I quite agree with Dr. Emerson that we really have no satisfying explanation of this increase in the death rate from heart disease. There is one thing on which physicians never disagree—or rarely disagree—and that is that when a man is dead he is dead. We have not only this increase in the death rate from heart disease, but a high death rate in elderly life. While I agree that there may be some increase in the rate from heart disease due to variations in reporting, I believe that the increase is a veritable one. I have never been able to explain it on any other hypothesis than a very general one—that of the lack of adjustment of man as an animal to a sedentary, industrial existence, an existence that is increasing in its sedentary character. The highest rate from heart disease is found among the sedentary workers; the lowest rate is found among those engaged in outdoor occupations. In a study of 13,000 persons who had had periodic health examinations, the hypertensive group showed one outstanding characteristic—that of overweight; and in the overweight group hypertension was an outstanding characteristic. An overweight condition is a mark of maladjustment. Dr. Dublin traced the after-history of patients who had had scarlet fever, and he did not find any excessive death rate from heart disease in that group. In other countries, the survival of the unfit has been going on, and we do not find in those countries the same steady upward trend in the death rate from heart disease, and also we do not find this failure to improve the death rate in later life. What does that mean? It means that we must study the mores of the people. We must do what we can to improve their health ideals and their personal hygiene. When we do not know whether they are suffering from a focal infection or from overeating, we should endeavor to correct both of those faults and all others found. After the epidemic of influenza in 1918 there was a tremendous drop in the death rate from heart disease, and some statisticians then thought we had turned the corner. My own explanation was that there had been a catharsis of these impaired lives, and that later there would be a resumption of the upward trend. That has been the case.

DR. M. M. MYERS, Des Moines, Iowa: As one interested in the problem of heart disease, I should like to refer to the matter of making rheumatic fever a reportable disease. Opinions differ regarding the communicability of rheumatic fever, but it is known that rheumatic fever is commonly a forerunner of heart disease in young persons, and there is need, therefore, in rural communities like our own to obtain information about the incidence of rheumatic fever. Dr. Albert has said that the department of health of Iowa has made rheumatic fever a reportable disease. That does not mean, of course, that all physicians are going to report the disease. Those interested in the matter will do everything possible to secure state-wide reporting. There are certain advantages in including this disease among those to be reported by physicians. One advantage is that statistical information on the incidence of the disease would be secured. Again, it would serve to emphasize to physicians the importance of this disease as a cause of heart trouble; it would prompt them to give thought to the early recognition and scientific care of this disease.

DR. HENRY ALBERT, Iowa City: There has been no opportunity for further discussion with reference to whether or not rheumatic fever should be made more generally reportable, and I hope on some occasion to take this up with either the U. S. Public Health Service or some other body, such as the proper committee of the American Public Health Association or the Conference of State and Provincial Health Officers. I am not at all sure that there has been a marked decrease, or perhaps, even any decrease in the number of cases of acute rheumatic fever. Dr. Emerson and the other gentlemen who spoke seemed to think that there has been a marked decrease in recent years. Previous to my coming here, while I was preparing the paper, I made inquiry of a number of clinicians, and their general impression was that there has not been any material change in the number of cases of the disease. I think that it would be exceedingly desirable for cases of this disease to be reported. Dr. Emerson asked whether or not I believed that acute rheumatic fever and syphilis were in part responsible for what is ordinarily regarded as arteriosclerosis. I would not like to say that they are, nor would I like to say that they are not. Certain it is that syphilis at least is responsible for many more cases of heart disease than is ordinarily supposed to be the case. Some years ago, Dr. Warthin found evidence of syphilis in a heart at postmortem examination that was not recognized as such by the clinician. May I suggest that probably one reason for the fact that heart disease is more prevalent among those who follow a sedentary occupation is, perhaps, that the heart disease in the first place caused the individual to follow an occupation of that type.

Aims of Secondary Education.—The aims and objectives of secondary education may be included under the blanket terms "individual development" and "social efficiency." More specifically, these include knowledge, habits, skills, interests and ideals in the following fields: materials of the curriculum, health, morals, leisure, citizenship, home life and vocation. Characteristics that influence the pupil strongly are a variety of interests and a stimulating social environment. These should be enlisted as allies lest they become enemies of the learning process. In the high school should be developed healthy bodies and emotions, constructive thinking, good citizenship, the ability to utilize leisure, the fine art of making and keeping friends, and a sound philosophy of conduct. The pupil who is out of alinement with these ideals cannot hope for the best intellectual success. The lack of adjustment involved has the disturbing effect of distracting his attention from the business in hand. He is out of touch with the best influences of his environment.—Bird, Grace E.: *Mental Hygiene* **11**:260 (April) 1927.

LOCAL SPECIFIC TREATMENT OF EXPERIMENTAL PNEUMOCOCCUS MENINGITIS *

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Pneumococcus meningitis is recognized as a highly fatal disease. In spite of rare reports of recovery, the mortality closely approaches 100 per cent. It is still uncertain whether the very occasional reported instances of recovery are not cases of incomplete or incorrect diagnosis. With a relative mortality from this form of meningeal infection so great, every effort should be made to achieve a treatment, although drastic, which may in some degree mitigate its fatality. During the past year our attention has been directed toward the study of the means of production, nature of the pathologic changes, and modes of treatment of type I pneucoccal meningitis in animals. After a number of trials, dogs were selected as most suitable for the experiments. Cognizance has, of course, been taken of the fact that in man pneumococcus meningitis usually is a concomitant of secondary infection in association with pneumonia or another distant focal process of infection.

EXPERIMENTAL

The dogs were anesthetized and infected with virulent type I pneumococci by injection into the cisterna magna. The culture employed was of a highly virulent type I pneumococcus, killing mice in a dilution of 0.0000001. Only young, six hour, dextrose broth culture were used; the organisms were well along on the upward limb of the growth curve; they were largely in chains and consequently of maximum virulence. The dosage of organisms was determined accurately in each instance by the use of a Petroff-Hausser counting chamber. The number used to induce disease ranged from 6.5 to 15 million, according to the weight of the dogs.

Within a period ranging from eighteen to forty-two hours after injection, diagnostic lumbar and cisternal punctures were made. The fluids withdrawn were opalescent or seropurulent, containing varying numbers of polymorphonuclear leukocytes and pneumococci often in enormous quantities. If the animal was allowed to progress without treatment, death always ensued, sometimes with an accompanying bacteremia. Autopsies showed massive generalized, purulent leptomeningitis, usually with purulent ventriculitis, and all smears indicated an enormous overgrowth of pneumococci. Occasionally the inflammatory process was less generalized, resulting in a partial basilar localization, thus resembling grossly meningococcic meningitis in man.

As intimated, the treatment employed was drastic. After numerous trials it became apparent that if intrathecal injections were used in the hope of controlling the disease, they must reach all regions of the brain and cord. At first in our experiments, lavage of warm physiologic sodium chloride solution was employed, washing from the lumbar subarachnoid space to the cisterna magna. The lavage was followed by injections of antipneumococcus serum in both the lumbar subarachnoid space and the cisterna magna. Later on the antipneumococcus serum was combined with ethylhydrocupreine hydrochloride. The serum used was the regular type I antipneumococcus serum prepared by the New York State Department of Public Health. Ethylhydrocupreine hydrochloride was kept as a 1 per cent stock solution in physiologic sodium chloride solution. Just prior to use, 1 cc. of the drug solution was added to 20 cc. of serum, warmed to about 40 C. This mixture was slowly lavaged through the meninges from lumbar to cistern, drainage being maintained through the cisternal needle. Not more than 15 cc. has been used in a single cord lavage. Rarely did this drug concentration give rise to any respiratory embarrassment. When the latter did result, it was very transient and a brief period of artificial respiration sufficed to revive the animal. Even with higher drug concentrations, animals have been revived after twenty minutes of artificial respiration, plus intracardiac epinephrine in case of pulse failure. The danger point for drug concentration in the dog is variable. If not combined with serum, it is very low; if saline lavage is successful in washing out much of the cord pus, the drug concentration should never exceed that mentioned; if lavage is unsuccessful and much pus remains, animals will withstand much larger amounts of drug—in one instance 0.2 per cent, although this concentration is highly dangerous.

It soon became apparent that lavage and serum-ethylhydrocupreine hydrochloride treatment of the cord and cisterna would clear those regions but leave the anterior convexity and base untouched. These residual foci and likewise the lateral ventricles constituted a source of inevitable rapid reinfection of treated areas. It was therefore determined to reach the convexity by subarachnoid injections through trephine openings, in the dog about 1 cm. posterior to the frontal sinuses and 1 cm. on either side of the sagittal sinus. Injections were made in anesthetized animals through small needles inserted just through the dura, the needle being controlled by a guard, pierced by a hole through which the needle passed, its length being regulated by a set screw. After this technic of quadruple puncture was adopted, progressive sterilization of animals became possible. The following protocol is an example:

A male hound, weighing 7.25 Kg., May 2, 1927, at 4 p. m., under morphine and ether anesthesia, yielded clear fluid on cistern puncture. An injection of 10,000,000 type I pneumococci (six hour dextrose broth culture; growth, 680 million per cubic centimeter) was made. Good recovery followed. Twenty-four hours later the temperature was 102.2 F. The animal was sluggish. Lumbar puncture yielded opalescent and yellowish fluid under increased tension; cells, 50 per oil immersion field; diplococci, from 5 to 12 per field. The animal was not treated. Culture yielded a confluent growth.

Forty-two hours later the temperature was 103.7. The dog was sluggish but able to stand. Under morphine and ether, a quadruple puncture yielded yellowish, opalescent lumbar fluid; cells from 8 to 10 per oil immersion field; diplococci, about 100 per field. The cisternal fluid was similar. Lavage was attempted, but proceeded with difficulty and with poor return through the cisternal needle and was abandoned. An injection of 7 cc. of a mixture of serum, 10 cc., and 1 per cent ethylhydrocupreine hydrochloride, 0.5 cc., into the cisterna, 3 cc. into the lumbar, and 2 cc. of a similar mixture in each frontal subarachnoid region was made. Cultures yielded a confluent growth.

After sixty-six hours, the temperature was 102.9. The clinical condition was unchanged. Under morphine and ether, a quadruple puncture revealed the cisternal fluid clearing; cells, rare; diplococci, less than 20 per field. Lavage from lumbar to cistern was done with 10 cc. of saline solution; injection of serum-ethylhydrocupreine hydrochloride mixture was done as above. Dextrose, 100 cc., was given intraperitoneally. Culture yielded a confluent growth.

* From the Laboratories of the Rockefeller Institute for Medical Research.

After ninety hours, the temperature was 102.8. The condition was unchanged. Quadruple puncture revealed the fluid more cloudy; cells, from 20 to 40 per field; cocci, doubled in number. The last treatment was repeated. No lavage was done. Culture yielded a confluent growth.

After ninety-six hours, the treatment was repeated with the exception of the frontal injections. The cisternal fluid was cloudier; the cells were increased, but what few pneumococci were present were destroyed by phagocytes. Culture yielded a few colonies.

After 114 hours, the temperature was 102.6; the clinical condition was unchanged. Under morphine and ether, cisternal puncture revealed the fluid scanty, with 6 or 7 diplococci per field. Culture showed the colonies increased. Complete treatment was given as before with exception of the left frontal; no lavage was done.

After 138 hours, the temperature was 104; the condition was changed; the dog had eaten and drunk; he stood up and wagged his tail. Under ether, a quadruple puncture was made; lavage was done from lumbar to cistern with 15 cc. of the serum-ethylhydrocupreine hydrochloride mixture (serum, 15 cc.; ethylhydrocupreine hydrochloride, 0.75 cc. of 1 per cent solution); 1.5 cc. of the same mixture was used in both frontal trephines. The fluid was clearing; cells were from 5 to 10 per field; no cocci were seen. Culture yielded a scanty growth.

After 162 hours, the temperature was 102.7; canine distemper had supervened; the animal was less active and could not stand without assistance. Under ether, lumbar and cistern punctures yielded 4 or 5 cells per field but no cocci. Culture was sterile; lavage was done with 14 cc. of the serum-ethylhydrocupreine hydrochloride mixture. Dextrose, 100 cc., was injected intraperitoneally.

After 186 hours, the temperature was 102.7; the distemper was worse; thick pus was flowing from the nostrils. Treatment was not given.

After 210 hours the condition was unchanged. Diagnostic cistern puncture revealed rare cells; no cocci. An injection of 5 cc. of serum was given as a prophylactic. Culture was negative.

After 288 hours, the dog was very ill from distemper, with subnormal temperature, and was chloroformed. There was bilateral bronchopneumonia (*B. bronchisepticus*). The entire brain and cord grossly were normal but there was a slight excess of small lymphocytes and endothelial leukocytes in the cistern and ventricular fluids. Cultures taken from all regions, including the entire fluid contents of the lateral ventricles, failed to give growth.

Microscopically, there was some slight generalized infiltration of the meninges by endothelial leukocytes; many were fatty, a few with blood pigment; it was a typical late clearing up stage. In addition, there were collections of lymphocytes in the region just beneath the ependyma of the ventricles.

In other animals, sterilization has occurred more rapidly and recovery secured. Experience has shown us that no partial sterilization will avail. It must be practically complete; if not, reinfection will almost certainly occur. A single negative cisternal culture suggests sterilization, but the cultures should be repeated daily for at least three days before cure can be assured. Smears showing no organisms possess little or no significance. Complete treatments must be continued until the culture is negative for forty-eight hours. If organisms persist in small numbers, despite repeated treatments by quadruple puncture, a lateral ventricle focus, or less likely a basal focus, must be suspected and ventricular punctures or punctures through to the base should be considered. None of these proceedings require any great technical skill. In the dog, accidents are unavoidable on account of the absence of a lumbar culdesac, and because of the small margin of safety in the cistern. In man the problem should be simpler.

This paper is a summary. The work will be published in detail in a forthcoming number of the *Journal of Experimental Medicine*.

SPECIFIC AND NONSPECIFIC REMEDIES IN THE TREATMENT OF ENCEPHALITIS *

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The treatment of epidemic encephalitis depends greatly on the stage of the disease, whether acute, latent or chronic. During the first stage, the infection and the symptoms are attacked. During the latent period, efforts should be made to increase the resistance of the individual, to eradicate possible foci of infection, and to exterminate whatever organisms have not already been overcome by the defensive forces of the body. In the chronic stage, the attempt is made to stop the progress of the disease and to palliate such distressing symptoms as paralysis agitans and insomnia.

Many antiseptics, such as acriflavine, methenamine and sulphur, have been recommended in combating the infection during the first stage. Among the medicinal substances, however, the salicylates stand foremost. They are used extensively and in large doses, given intravenously if the stomach rebels. Acetylsalicylic acid is perhaps best tolerated, and may be administered in 0.3 Gm. doses every three hours. In intravenous medication, sodium salicylate in from 1 to 1.5 Gm. doses in 10 per cent solution with 10 per cent dextrose is given daily or oftener. The dextrose prevents the obliteration of the veins.

Salicylates have the effect not only of shortening the course of the infection but also of diminishing its severity and of relieving the headache and neuritic pains that are so often present. Their use in encephalitis is often followed by as favorable results as their use in rheumatic fever.

Lumbar puncture is used freely in cases showing excitement or signs of meningitis, and it seldom fails to relieve headache or convulsions. In other forms of the disease it is not always so useful, and some writers warn against overuse as tending to disseminate the infection.

Colloidal substances have been in vogue since the early days of the present epidemic of encephalitis, and favorable results have been reported from the injections of milk, of colloidal silver and of other metallic preparations, and especially of various serums, normal and immune. Each one of them has had strong advocates. The unexpected recoveries in serious cases following any treatment, or none at all, do not tend to standardize the treatment.

A specific antiserum against encephalitis is not yet recognized, although several individual workers, notably Rosenow,[1] have reported favorable results.

About two years ago Evans and I[2] succeeded in isolating from the nasal washings, heart blood and brain of patients dying from encephalitis a neurotropic streptococcus which we believe to be the cause of the disease. It is identical with the organism isolated by Rosenow and others. With this strain an immune serum was prepared for trial in the treatment of the disease. I have used it in nine acute cases of encepha-

* From St. Elizabeth's Hospital.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 19, 1927.

1. Rosenow, E. C.: The Specific Serum Treatment of Epidemic (Lethargic) Encephalitis, J. A. M. A. **80**: 1583 (June 2) 1923.

2. Evans, Alice C., and Freeman, Walter: The Etiology of Epidemic Encephalitis: I. The Streptococcus, Pub. Health Rep. **41**: 1095 (June 4) 1926.

litis and in one recurrence during the parkinsonian stage, as well as in three intercurrent relapses. In uncomplicated cases there has been very notable improvement which could be ascribed in large measure to the use of this serum. The patients have continued to do well, and parkinsonism either has not developed or has not increased. The time since the treatments were begun is too short, however, to permit the drawing of any adequate conclusions, for scarcely a year has elapsed since the first patient was treated.

With such success in the face of this dangerous disease whose mortality is said to vary from 30 to 50 per cent, I believed that we might be approaching the era of specific treatment. The results in case 1, however, showed that the nonspecific protein effect must be strongly considered in evaluating the data.

CASE 1.—Mrs. A. B. M., aged 33, had been in ill health for several months, and early in April, 1927, following an attack of otitis media, developed staggering and diplopia. She spoke thickly and laughed and cried without adequate cause. There was also hiccuping and slight fever. The spinal fluid contained 90 cells per cubic millimeter. April 12, 50 cc. of antiencephalitis serum was given intravenously. The next morning she was quiet, the spasms of the diaphragm had stopped, and the ocular deviation was reduced about three fourths. Within thirty-six hours she had a relapse, and at this time 30 cc. of normal horse serum was injected intramuscularly. This also brought about considerable improvement, which lasted until April 19, when she again complained of headache, tingling and diplopia, and the diaphragmatic spasms and slurring of speech returned. At this time 20 cc. of antipneumococcus serum was given, and in the following days the symptoms cleared up rapidly. A fourth relapse occurred, May 8, at which time 500 million killed streptococci was administered intravenously. A sharp reaction occurred, but considerable improvement followed this injection.

The injection of normal horse serum during one relapse, of antipneumococcus serum during another, and of streptococcus bacterin during a third thus had the same beneficial effect that the encephalitis serum had in the first place. This is only a single case, and final conclusions for or against cannot be drawn at this time; but it emphasizes the need of proper controls in evaluating the usefulness of a given product. Russell [3] has described a number of recoveries following the use of antidiphtheritic serum, and Rosenow is open to conviction on the subject of nonspecific protein therapy.

Blood transfusion is theoretically and practically one of the most useful measures in combating severe encephalitis. Our published studies have indicated that a large percentage of individuals carry in the nasopharynx an organism indistinguishable from the one isolated from the brain in certain fatal cases of encephalitis. Therefore it is argued that a certain degree of immunity is possessed by the healthy individual, and that this immunity may be conveyed to a recipient. The following patient was greatly benefited by blood transfusion in addition to the serum injection.

CASE 2.—Miss V. A. D., aged 38, developed acute severe encephalitis after influenza in May, 1926. There was high fever, delirium, ptosis and cervical rigidity. Twenty-four hours after lumbar puncture, she began having convulsions. May 13, she was in deep coma with stertorous respiration. The optic disk was swollen 3 diopters; the temperature was 104; the pulse, 180, and the respiration 35 per minute. An injection of 100 cc. of antiencephalitis serum was given subcutaneously. She roused somewhat, and the convulsions ceased for twelve hours. In spite of repeated serum injections, however, by May 16 she was in status epilepticus and appeared moribund. The temperature was 104.8 and the pulse 180, and of poor quality. The respiration was shallow and the skin leaky and cyanosed. The spinal fluid was under great pressure. The convulsions ceased, and her condition improved following lumbar puncture and oxygen administration. She was given a transfusion of about 500 cc. of blood from her brother. The following day the temperature fell to 101, the pulse to 120. She was conscious but sluggish, and complained of pains in the legs. More serum was given on the following day. During the ensuing weeks she had considerable muscular rigidity and abdominal distention and incontinence, but she improved slowly with occasional mild relapses.

Before the transfusion this patient was obviously in a desperate condition with all the signs of medullary edema. Whether the blood transfusion acted in a specific manner in arresting the disease process, or, as it frequently does in noninfectious cases, in reestablishing the impaired cerebral circulation, I am unable to state. Both factors must be considered. The patient recovered, and eventually returned to her former occupation with scarcely a sign of injury to the nervous system.

The serum of convalescents has occasionally been used in acute cases, but from the reports I have encountered it cannot be regarded as specific.

THE LATENT PERIOD

Following the subsidence of fever and the establishment of convalescence, most patients in the past have been allowed to get well without assistance or intervention by the physician. As I have pointed out, however, this period theoretically offers the best opportunity for eradicating an infection largely overcome by the resistive forces of the body. In a previous paper I [4] drew an analogy between encephalitis on the one hand and rheumatic fever and syphilis on the other, calling attention to the acute illness, the period free from symptoms, and the chronic stage of disastrous sequelae. These sequelae are as truly manifestations of chronic encephalitis as tabes dorsalis and dementia paralytica are manifestations of chronic syphilis. It is reasonable, therefore, to take active measures during the period of good health following the acute illness in order to forestall the development of the chronic progressive forms of the disease.

With that end in view, patients are studied thoroughly with a view to disclosing foci of infection about the mouth and nose. Teeth should be extracted on the slightest provocation and diseased tonsils removed, and the persistence of sinus infection should be regarded as a menace. The occurrence of acute tonsillitis and sinusitis in association with encephalitis, as forerunners or as followers, draws attention to the possible close etiologic relationship between these diseases. Evans' work tends to show that there is nothing very specific about the organism that we have found associated with encephalitis, but that its predilection for the nervous system constitutes the outstanding danger.

In addition to eliminating possible foci of infection, we attempt to increase the resistance of the individual against the organism that we incriminate. To this end we inject killed organisms within a short time after the acute symptoms die down, even in the face of slight fever. In those cases in which a streptococcus has been cultivated from the blood during the acute state an autogenous vaccine is used, and in others a stock bacterin from some other case of encephalitis. The

3. Russell, C. K.: Epidemic Encephalitis: The Influence of Horse Serum in Treatment, Canad. M. A. J. 12: 705 (Oct.) 1922.

4. Freeman, Walter: Chronic Epidemic Encephalitis, J. A. M. A. 87: 1601 (Nov. 13) 1926.

injections are started with doses of 50 million organisms, and the amount doubled each time at weekly intervals. The dosage should be carefully controlled, for the injection of too large an initial dose may be responsible for a relapse such as occurred in case 3.

CASE 3.—Mrs. E. S., aged 24, had acute encephalitis in 1920 with headache, drowsiness and diplopia. She recovered completely, but in 1924 developed progressive parkinsonian disorders with spasms of upward conjugate deviation of the eyes. Jan. 19, 1927, I injected, as an initial dose of vaccine, 250 million killed streptococci. The patient had been exposed to a mild form of influenza and complained of sore throat. She had a severe reaction with fever, and during the next few days developed greatly increased stiffness in the limbs and marked spasms of the eyes. She was somewhat confused but not somnolent. She was given 50 cc. of antiencephalitis serum subcutaneously, and after subsidence of the serum reaction she improved rapidly. Subsequent injection of the same dose of vaccine caused a rise of temperature to 102, but within twenty-four hours this flare-up receded and she was soon discharged from the hospital. Injection of the same dose on February 17 had no effect, and by March 14 twenty times this dose was tolerated easily. The rigidity subsided to the degree that had been present before the relapse.

Ten injections are looked on as a "course," and such a course may be repeated after an interval if it is deemed advisable. Patient 2 is now receiving her fourth course, since I am not satisfied that the infection has been entirely eradicated. When a dose of 5,000 million organisms does not cause any reaction, local or general, I have injected the killed organisms intravenously. Here again it is necessary to start with minimal doses of from 50 to 100 million organisms.

The vaccine treatment of encephalitis is not new, having been suggested by Rosenow in 1923. The streptococcus seems to have antigenic power, and the injections are sometimes followed by rather severe reactions.

More recently, some French investigators have been injecting intraspinally an attenuated virus obtained by passing the encephalitis virus of Levaditi through rabbits. This virus is no longer infectious for monkeys, and has not produced any lighting up of the infection in patients. It is followed by rather severe reactions, but Poincloux [5] asserts that it does not have any effect, harmful or beneficial, if given intravenously. With this form of treatment I have not had any experience, but good results are reported even in the cases of paralysis agitans.

THE CHRONIC STAGE

The late manifestations of encephalitis may not appear for months or even years after the subsidence of the acute illness, but a follow-up of patients who have recovered shows that within two or three years an extremely high proportion develop various disorders. Robb [6] has recently reported a study of 141 patients made two and a half years after their recovery from the acute manifestations. Of these, only thirteen were apparently well, and nearly ten times as many were incapacitated to a greater or less degree. Fifty-eight per cent of the patients had paralysis agitans. He makes the significant remark: "I have no doubt were these (healthy) cases again examined at the end of say five or six years from the onset, this percentage would be further reduced."

The treatment of encephalitis in the chronic stage is to some extent a continuation of that in the latent period, in that an effort is made to eradicate the persisting infection. Foci of infection are treated, and vaccine injections are given so that the course of the disease may be stopped. Aside from these, the injection of proteins and other agents that provoke shocks have been most successful. Leiner [7] recommends sodium nucleinate; others have tried typhoid vaccine, horse serum, and even malaria inoculations. Special consideration must be given to the procedure of injecting into the lumbar sac the patient's own blood serum. Tucker [8] is quite enthusiastic about this, and Conti, Finlayson and Karnosh, Moore, Pette and others have reported cases, although with less striking results. Not much is to be expected when the physical disability has proceeded to a marked degree, but in the less serious cases temporary improvement is the rule.

Protein seems to stimulate certain defensive forces of the body and enable them to overcome the persistent infection. With the infection eliminated, an opportunity is given for the nerve cells that are injured but not killed to resume their functions.

Any treatment, therefore, that produces a shock may be followed by definite, though usually temporary, improvement. Killed streptococci from known cases of encephalitis may have an additional antigenic effect, and the intraspinal injections of autoserum may carry immune bodies into the nervous system, so these methods are recommended.

Among the drugs that have been used during the chronic stage to relieve the rigidity of parkinsonism, scopolamine is the most effective. The nature of its action is not altogether understood, although some acute hypotheses have been furnished by French clinicians. The action would seem to be a depressant one on the extrapyramidal system, thus freeing the pyramidal system from its brake. In doses of $\frac{1}{100}$ grain (0.6 mg.), it may be given three or four times a day depending on the tolerance of the individual. Some can take double the dose. Disagreeable symptoms, such as light-headedness or unusual dryness of the mouth, indicate reduction in the dosage. Many untreated parkinsonian patients are salivated, however, and the drying up of secretions is a relief. A nice balance between relief and intoxication can be found only by trial. The drug seems to be tolerated well over long periods of time. If scopolamine is not effective, atropine may be used, and often has a salutary effect on the oculogyric spasms that so distress certain patients. Many other active drugs have been used but without much benefit. Drug effects are temporary at best, but many patients are enabled by taking scopolamine to walk, talk and chew—acts they had previously been unable to perform.

Physical therapy has not yet disclosed a satisfactory method for the treatment of these rigid patients. Exercise seems to be harmful, and massage should be gentle. The greatest relaxation is accomplished by the hot bath, but could water is to be shunned. Froment mentions that a poor fellow almost drowned in one of the swimming pools of Paris. The rigidity was so immoderately increased by the cold that swimming was impossible.

I have had no experience with the psychotherapeutic method of approach in dealing with chronic encephalitis,

5. Marie and Poincloux: Essai de vaccinothérapie intrarachidienne des séquelles de l'encéphalite epidémique avec du virus fixe encéphalitique, Bull. Acad. de méd., Paris **91**: 322 (March 11) 1924.
6. Robb, A. G.: Epidemic Encephalitis: The Proportion of Permanent Recoveries, Brit. M. J. **1**: 615 (April 2) 1927.
7. Leiner, J. H.: Epidemic Encephalitis: Its Treatment with Sodium Nucleinate, New York State M. J. **22**: 478 (Dec.) 1923.
8. Tucker, B. R.: Intraspinal Autogenous Serum Treatment in Lethargic Encephalitis, J. Nerv. & Ment. Dis. **60**: 347, 1924.

although in cases of disorders of respiration and of behavior, such treatment may be indicated. Surgical procedures have accomplished nothing.

SUMMARY

In the vast literature that deals with encephalitis and its treatment, certain principles stand out. The disease is infectious, though but slightly contagious, and is probably caused by a pleomorphic organism that gains entrance to the nervous system by the blood stream from foci of infection about the nose and mouth. It is particularly liable to develop in individuals who have been under prolonged strain with insufficient periods of rest. Its prophylaxis, therefore, includes the maintenance of optimal health, physical and mental.

During the period of acute manifestations, salicylates are the medicinal preparations of choice for their direct action on the supposed cause, and colloidal materials for their nonspecific effect on the immune bodies. Attempts at serotherapy are promising, but the question of specificity is not yet solved. Blood transfusion may be a life-saving measure.

With the inception of convalescence, foci of infection are to be eradicated, and it is possible that active immunization with killed streptococci will forestall the late recurrences. Up to the present time, the indications have been favorable.

With the development of the chronic progressive manifestations, similar therapeutic aids are invoked in arresting the course of the disease, and shock treatment and intraspinal autoserum injections are to be considered. The medicament of choice in paralysis agitans is scopolamine.

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ABSTRACT OF DISCUSSION

DR. GEORGE W. HALL, Chicago: We have produced chills and fever by the use of nonspecific protein therapy in the treatment of encephalitis, in a few cases showing the parkinsonian syndrome. As many as twenty-five chills have been given to a few of our patients. About the only statement we can make at this time is that the patients inform us that they can dress more quickly and walk more alertly. Aside from these indications, we have been unable to develop any evidence of improvement.

DR. A. L. SKOOG, Kansas City, Mo.: One question is: Shall we term encephalitis as being acute, subacute or chronic? Dr. Freeman referred to a report from Great Britain concerning about 140 cases. Most of the patients either passed into a chronic state or died; only a very small percentage recovered. If that is correct, then only a very small percentage of cases can be classified as being acute. I think that all cases are first acute, but many of them undoubtedly go into the chronic state, and a high percentage pass into that most wretched condition of parkinsonian syndrome. I have seen cases that I hardly knew how to classify. There is a great variation in the symptomatology of this illness. Some cases I would prefer to classify as meningo-encephalitis. Four cases were quite exceptional in that they showed very marked involvement of the meninges and psychic manifestations. A great number and variety of treatments have been advocated. I favor the use of methenamine; however, it must be pushed to the maximum degree. Of course there is danger of irritating the kidneys, but if one has one's patient under close observation, one can watch the urine carefully for such indications.

DR. W. F. LORENZ, Madison, Wis.: In Wisconsin we made a survey during the last year in an attempt to get some data on the prevalence of the chronic or residual states of encephalitis. By means of a questionnaire sent to the physicians of Wisconsin, we learned of 841 cases in Wisconsin. Of that number, in the opinion of the physicians, about 240 required institutional care. These patients are so seriously impaired that they are not susceptible of adjustment at home. From a state or a community standpoint, that presents a serious problem. Where are these persons to be treated? At the University Hospital we have had fifty-six of them. At the prevailing per diem cost to the University Hospital, it is utterly impossible to keep these patients there over any great period of time. I understand that Minnesota has made provisions for additions to the state hospitals where these chronic cases may be treated. We are reluctant to make that disposition in Wisconsin, but some type of institutional care is needed.

DR. E. C. ROSENOW, Rochester, Minn.: Dr. Freeman's report gives me a good deal of personal satisfaction. It is now five years since I reported a series of experiments indicating causal relationship between a streptococcus having peculiar neurotropic infecting power and epidemic encephalitis, a streptococcus different in important respects from the one described by von Wiesner. The streptococcus which Freeman and Evans have described seems identical with the one I isolated in a large series of cases of encephalitis, and with which symptoms and lesions simulating those in the patient from whom the streptococcus was obtained have so consistently been reproduced in animals. Dr. Freeman's results from the use of the specific antiserum are also corroborative of those which we have obtained. We have not used normal horse serum in the treatment because experiments in animals showed that while normal horse serum agglutinated these strains in low dilution and retarded, somewhat, the progress of the experimental encephalitis, its effect was less marked than the highly agglutinating specific immune serum. Our results, as his, were most striking in early cases with a tendency to recurrence, making it necessary to repeat the serum injection. In chronic cases, especially of the parkinsonian type, the results were less striking, but even here, patients sometimes expressed themselves as feeling much better, although this relief was usually only temporary.

DR. HARRY ALTON SCHACHTER, Newark, N. J.: I am impelled to ask Dr. Freeman whether he really believes that he has isolated the cause of epidemic encephalitis. Has he tried to apply Koch's law to the determination of the actual etiology of this disease? In 1919, when I was an intern at Fordham Hospital, Dr. Thomas F. Reilly asked me to take a culture from the blood of a patient with acute encephalitis. I did so. A blood culture was made when the patient was admitted to the hospital and was repeated two days later. After death, while the body was still warm, we did a heart puncture and took a culture of the heart blood. Several days later when we were about to discard the hitherto apparently negative blood agar cultures in the Petri dishes, we saw several discrete, grayish colonies, which, on microscopic examination with a hurried stain, revealed numerous very small bacilli in pure culture. We did not have a trained bacteriologist to carry on the work, nor were we at the time equipped to go further with it, but there is a serious question in my mind as to whether or not this organism is the cause of epidemic encephalitis. Surely such a conclusion cannot be arrived at from what Dr. Freeman has told us, or from his equally good results in the use of nonspecific proteins and vaccines, and other therapeutic agents.

DR. L. L. CAZENAVETTE, New Orleans: In many cases which we have seen in New Orleans we have noticed that, at times, there were remissions or intermissions in the course of the disease. Some patients would do fairly well for a time and then return again to former stages. Sometimes we wondered whether the medication used would account for this change, or whether merely some change taking place internally was the reason. Several French authors recommend atropine preparations highly. I should like to ask Dr. Freeman whether he used atropine in any of his cases for any length of time, and what results he may have had.

DR. H. S. HULBERT, Chicago: Dr. Freeman spoke of the French work with the Levaditi virus, and I should like to ask him whether he knows of any one who is working with the herpes virus in this country. The Belgian authorities seem to put great weight on that, not only in the treatment of acute cases but also as specific spinal fluid test. A herpes

virus brain emulsion is diagnostic of epidemic encephalitis against all other diseases, with one exception, multiple sclerosis, which makes us again wonder whether there is some relation between multiple sclerosis and epidemic encephalitis.

DR. WILLIAM HOUSE, Portland, Ore.: I am surprised that scopolamine has not been mentioned for its great palliative benefits in chronic cases of encephalitis. I have used it for years in parkinsonian cases, giving, as a rule, 1/100 grain (0.6 mg.) twice, and sometimes thrice, daily. I have seen patients who were tremulous, drooling at the mouth, and almost unable to walk, improve to such an extent that they were able, in part, to resume useful occupations. Some may hesitate to use scopolamine over long periods; but in a case of paralysis agitans in which I gave tablets of 1/100 grain four times daily for more than nine years, there was no apparent injury and the effect was still good at the end of that time, when the patient died. Serum treatment has not proved itself. I used it in sixteen cases, both acute and chronic, with good results in some cases but with such marked reaction in other cases that I finally discontinued its use. One patient, the sickest I ever saw from this disease but who recovered, was unconscious for approximately six weeks with the temperature often reaching 104 or 105 F. His death seemed approaching and we decided to use intraspinal injections of the Rosenow serum. A terrific reaction, with a temperature rise to more than 106 F., increased delirium, and an aggravation of all symptoms, followed. A few days later his body was covered with a rash of elevated blotches 6 or 8 inches square. With appearance of this the temperature dropped, almost like a crisis in pneumonia. The patient recovered and at the end of four years is well and is pursuing his work successfully. Having this in mind, if I were confronted with a new epidemic I would, for want of something of more proved worth, most certainly try the intraspinal use of the Rosenow serum, although it may well be it is not specific and that any serum would produce the same results. In the Pacific Northwest, epidemic encephalitis has been almost constantly present throughout the winter months since 1919, and no year has passed without a series of cases with an apparently diminishing mortality but with no diminution in the severity of the sequelae. I am convinced that Dr. Freeman's statement that not more than 10 or 11 per cent recover completely is no exaggeration although it is, to me, a source of regret that his statistics are worse than mine were five years ago when I reported 145 cases with a mortality exceeding 25 per cent and an approximate complete recovery rate of about 20 or 25 per cent, which I have since reduced in my own mind to 10 or 12 per cent. At that time I thought I had the highest mortality rate in this disease in the United States. I was not proud of it; I just thought maybe I was a little more honest with myself or less optimistic than some others. Dr. Freeman, in a paper a few months ago, said that the mortality varied from 25 to 50 per cent. My own idea is that it varies from 15 to 35 per cent and is diminishing each year. In view of the gravity of the disorder, I believe that intraspinal injections should be tried in severe cases.

DR. WALTER J. FREEMAN, JR., Washington, D. C.: I should have given credit to Dr. Rosenow; I have given him credit in two or three places in the paper. He, of course, began this work with serum. Although he was not the first to isolate a pathogenic organism from the brain in cases of acute encephalitis, he has done it in more cases than anybody else; he has worked it out more thoroughly than anybody else, and we who come after him and seek to follow in his path, when we follow out his technic, get the same results. After all, a cure bears little relation to a cause, and while I would point this out, I would also say that Dr. Schachter is possibly right in casting doubt on the cause or on our opinion as to the cause of encephalitis. We may be wrong. Time and other investigations will have to tell. We have obtained this organism from a number of cases; not anywhere near as many as Dr. Rosenow has. In regard to the treatment during the chronic stage, particularly of parkinsonism, I have found that scopolamine gives the most favorable results in suppressing the rigidity and the tremor. The reason for this is not accurately known, although some hypotheses have been furnished by French clinicians. Scopolamine probably has good effects. I have used atropine rather extensively. It controls the oculogyric spasms very nicely. I have tried many other things, including curare and cicutine and even nicotine, without any favorable results; in fact, the rigidity was greatly increased by nicotine pushed to the stage of intoxication. My purpose will have been accomplished if, in a case of encephalitis in which there has been recovery from the acute stage, I can succeed in getting my hearers to continue with some shock treatment or some other method in the hope of eradicating the remaining organisms, because, after all, when the substantia nigra is gone, we cannot do anything for the paralysis agitans. We must prevent that, if we can, and in most cases we are given adequate warning because the cases of paralysis agitans developing without an acute infectious basis are rather few. The time to treat this disease is in the latent period.

CANCER OF THE TONGUE*

WILLIAM H. SCHMIDT, M.D.
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The treatment of cancer of the tongue is of vital importance to the medical profession, because of its frequency and virulent character. Some authorities place it next in frequency to cancer of the uterus, and others assign it to third and fourth place. While the disease occurs most frequently in men, it is not uncommon in women. A point that should be emphasized is that the disease does occur in the second and third decade, and great care should be taken not to be influenced too much by the apparent youth of the patient. It would seem that the disease is becoming more frequent in younger persons, and while more accurate diagnosis is undoubtedly being made, this certainly cannot account for the increase noted in younger persons.

There is probably no disease in which the causative factor and the precancerous lesions are more important, because of the serious nature of the disease and the difficulties in treatment. When the mortality which has been given by various authorities, such as Warren, Butlin and Miller, as from 75 to 90 per cent, and the primary operative mortality of 14 per cent, are considered, it is readily apparent that the hope of improving these statistics lies not only in early treatment but, more important still, in the eradication of precancerous lesions, thus preventing the development of the disease itself.

ETIOLOGY

In the etiology of the disease, the effects of tobacco are most important. Experience has shown that the vast majority of victims of cancer of the tongue are excessive users of tobacco, and its deleterious influences cannot be questioned. Nicotine has a decided irritant effect, producing chronic inflammation, local erosions and ulcerations, and, combined with the effects of heat and mechanical irritation in some cases, certainly has a predominating influence in the initiation of many cancers of the tongue.

Syphilis must also be considered in connection with the etiology. It is surprising with what frequency a positive Wassermann reaction is found in cases of cancer of the tongue. This has led to unfortunate delays in many cases in which an ulceration has been treated as syphilitic for varying periods of time, and in which the truth is learned only when the treatment does

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not have any effect, and, occasionally, when the ulcer shows an even more rapid growth. It cannot be too strongly emphasized that syphilis and cancer are very frequently seen in the same patient. The effect of the former is probably only indirect, the various lesions, such as leukoplakia, chronic glossitis, ulcerations and fissures, forming areas of chronic irritation and acting as the base for the development of malignant lesions.

Imperfect teeth and badly fitting dentures are directly responsible for the development of a large number of cases of cancer of the tongue. A sharp tooth constantly cutting the tongue will produce an ulcer, which by continued irritation will become malignant. The great danger of this condition should be firmly impressed on the dental profesion, as they are in a position to detect and correct many of these conditions and prevent the development of the disease.

Many other forms of chronic irritation exist on the tongue which are precancerous in nature, such as chronic glossitis, tuberculous ulcers, angioma and ordinary papilloma. The epithelium of the various glands and ducts in the tongue probably accounts for the origin of more cases of cancer than is realized, especially those involving the deeper portions of the tongue.

TYPES OF GROWTH

Cancer of the tongue usually takes the form of an ulcer with an excavated base and infiltrated edges, which are characteristic. It spreads rapidly, with considerable pain. Frequently, its first symptom is pain in the ear, and this should always direct attention to the tongue.

Another type develops as a deep nodule, small but of characteristic hardness. This also eventually ulcerates. Leukoplakia undergoing a malignant change shows at first a thickening of the patch; later it becomes wrinkled, and finally ulcerates and infiltrates the tissue. It usually occupies a broad base, and is more or less superficial.

A simple papilloma becoming malignant shows a rapid increase in size with infiltration of the base. The most frequent sites for the lesion are on the edge of the tongue, the undersurface near the frenum, at the tip and on the base of the tongue.

Deep infiltration usually occurs rapidly, because the tongue is simply a bundle of muscles, and the frequent movements squeeze the cells throughout the tongue structure.

Glandular metastasis is early, and has been noted as the first symptom of the disease. The superficial papillary type is slow to metastasize, but the deep ulcerative type metastasizes very quickly. The glands involved are the submaxillary, the superficial and the deep cervical. Frequently, the deep glands are involved, with the superficial glands remaining free, and occasionally the glands on the opposite side of the neck are involved. The disease seldom breaks through the lymphatic collar of the neck, and distant metastasis is infrequent.

The majority of cancers of the tongue are of the squamous-cell type, and usually preserve their adult characteristics, a point which is important when one comes to consider treatment. Rarely, the basal-cell type is seen, and occasionally in the base a lesion with undifferentiated cells is observed. The growth rapidly infiltrates the tissue, following chiefly the lymph vessels and nerves, so that any treatment must be early and radical.

TREATMENT

This condition is one in which the treatment in the past has been anything but satisfactory, dependence being placed on surgical removal. The operation itself carries a very high mortality and is a difficult procedure, accompanied by considerable hemorrhage and great shock. As a result, many patients who might have had a chance were refused operation, except possibly in the hands of some experienced surgeon.

Surgical treatment, to be reasonably successful, requires radical operation. It is necessary to go well beyond the diseased area, and in even moderately advanced cases the total removal of the tongue is required, together with the floor of the mouth. This usually requires dividing the jaw. A block dissection of all the lymphatic tissue of the neck is also necessary, and usually includes the removal of the jugular vein and part of the sternomastoid muscle.

Because of the nature of the operation, most surgeons are inclined to place the case in the inoperable class, or to attempt to palliate the condition with inefficient and haphazard radiation therapy. As an example, Judd and New [1] of the Mayo Clinic, report 61 per cent of their cases as inoperable.

It can readily be seen, therefore, that in the best clinic there is a large class which is virtually denied any chance from the beginning. If this is true, the percentage of inoperable cases is certainly much larger among the general surgeons.

Modern surgical practice has markedly reduced the primary mortality, but the best surgical statistics do not claim more than 30 per cent of cures of three years' duration, and these, of course, are the early operable cases representing only about 40 per cent of the total. The other 60 per cent do not even have a chance. The mutilation is necessarily excessive, resulting in considerable deformities, without hope of correction. The chance of local recurrence is always great when the scalpel is used in tissue infected with malignant disease, and the chances of cure are entirely dependent on the incision of the knife guided by the judgment of the operator. The temptation to conserve tissue is always great, and an irretrievable mistake can easily occur.

The constant teaching of the various organizations attempting to educate the public on the subject of cancer is that surgery should be tried first as offering the patient the best chance. If recent reports of the surgical results in the treatment of cancer of the tongue are to be believed, the patient's first and best chance is very meager from the surgical standpoint, even after years of experience and improvement. On the other hand, surgery cannot be discarded until some other method proves its ability to produce better results, but effort should be stimulated to seek for improvement, and any method giving reasonable hope of success should be pursued with the utmost diligence.

When the value of radium in malignant disease was discovered our hopes were raised very high, and even at a recent date it has been authoritatively stated that radium deserves first place in the treatment of the disease. Like every innovation, the enthusiast who is carried away with his work loses sight of the broad general aspect of the situation. We have seen this zeal gradually diminish, and recently, with modified technic, recur.

1. Judd, E. S., and New, G. R.: Carcinoma of the Tongue: Results obtained at the Mayo Clinic, Surg. Gynec. Obst. **36**: 163 (Feb.) 1923.

In this respect, the cellular pathologic manifestations of cancer of the tongue are most important. It is well recognized that undifferentiated cells are more readily influenced by radium than are those of the more differentiated type. A very small percentage of cancers of the tongue are composed of an embryonal type of cell, and the vast majority show cells approaching closely the adult type, so that radium is handicapped in most cases.

The latest statistics on this subject are given in a recent report by Broders.[2] In a group of seventy-eight cases of epithelioma of the tongue, he found in group one, 1.28 per cent; in group two, 47.43 per cent; in group three, 46.15 per cent, and in group four, 5.12 per cent. More than 95 per cent were therefore in the first three groups. Forty-seven per cent required irradiation of sufficient strength to cause destruction, and 46 per cent were so close to the border line that they required very accurate distribution of the radium to produce a lethal effect on every malignant cell present in the tongue.

With the exception of the few cases showing undifferentiated cells, radiation therapy must necessarily be used to the limit and with great precision by one well versed in its use, if any results whatever are to be hoped for.

External irradiation seldom does any permanent good, and frequently results in harm. It is practically impossible to get a uniform irradiation of all the diseased tissue unless one has large quantities of radium to employ, a condition existing in only a few large radium institutions, and altogether out of the question for most patients. Great harm may be done by causing the superficial portion of the growth to heal over, leaving diseased tissue in the depths, or by locking up cancer cells in fibrous tissue, which, because of the lack of blood supply, breaks down and initiates the disease anew.

The use of buried radium is more reasonable, as the effects are more pronounced, the destruction of cells more extensive, and the distribution of the radiation more even. Here, however, one must contend with the radium reaction, which is very severe, the pain and suffering being not only excessive but also of long duration, so that the cure is frequently worse than the disease. The technic must be exact and the needle so placed that every vestige of the diseased tissue receives a lethal dose, a procedure attended with considerable difficulty. When a slough results, it is very slow in separating, producing a malodorous discharge and interfering with nutrition and healing. Considerable time is lost in waiting for the slough to separate; when it does, a hard fibrous scar remains, and it is impossible to tell whether there is a diseased condition under it or not. The surrounding normal tissue is more or less devitalized, and the healing is very prolonged. Reapplication of radium is seldom practical, and the whole results of the treatment depend on the first application.

Glass seeds with radon have been tried with practically the same objectionable results as the radium needles. To overcome some of these objections, the seeds are now placed in gold tubes which filter out the alpha rays to a considerable extent, the beta rays resulting in less reaction and less sloughing. It does not, however, obviate the hard fibrous scar, delayed healing and devitalized normal tissue, and adds the new complication of a foreign body remaining in the tissue. What the ultimate results of this new complication will be remains to be seen; but, if irritation is a factor in malignant disease, the presence of a foreign body in tissue already susceptible to a malignant growth is at least interesting to contemplate.

Muir[3] has described a method of using removable seed in cancer of the tongue for which he claims superior results, but the radium reaction is not mentioned. Even if the reaction is less, there are still the disadvantages mentioned.

At the Memorial Hospital in New York, where radium is supposedly used under the best conditions, the results as published in 1924[4] are certainly far from encouraging, and when the suffering that radium treatment entails is considered, together with the delay of healing and the uncertainty of the results, one cannot be content, but must continue the search for better means of treating the disease.

ELECTROTHERMIC METHOD

When the subject of treatment is considered in a broad general view, especially the fact that the vast majority of these tumors are composed of well differentiated cells, it is obvious that some method of total removal is the best. The purely surgical method we have considered, and have pointed out some objections to its use. The electrothermic method is a surgical procedure which seems to overcome a number of the objections to the surgical removal with the knife. Experience and correct technic have so markedly improved the use of the electrothermic method that, in my experience, it is better than any other method of treatment employed in this disease.

The advantages of this method are as follows:

1. There is no loss of blood, and consequently very little surgical shock following the operation; in fact, most patients are out of bed the following day.
2. Blood and lymph spaces are sealed instantly, and there is no danger of spreading the disease by mechanical implantation.
3. There is a large amount of heat generated which penetrates the tissues well beyond the area actually destroyed, and which is sufficient to cause a devitalization of cancer cells without destroying the normal structures.
4. There is very little after-pain, and any suffering which was present before the operation usually is relieved.
5. The surrounding normal tissue is not devitalized in any way; in fact, certain studies would seem to indicate that nature is stimulated to a normal reaction against the growth.[5]
6. The slough separates rapidly, and within a week or ten days' time the wound should be perfectly clean. This is a very great advantage, and it enables one to tell in a short time whether all the disease has been removed or not.
7. Healing takes place without the formation of any dense fibrous tissue. This is an advantage, as the condition can be watched and the development of any disease detected at the site of operation.

If the lesion is small and situated on the front or side of the tongue, it is possible to destroy only the actually diseased area and conserve a large part of the tongue, depending on the heat penetration to devitalize outlying cancer cells and prevent recurrence.

2. Broders, A. C.: Carcinoma of the Mouth: Types and Degrees of Malignancy, Am. J. Roentgenol. **17**: 90 (Jan.) 1927.

3. Muir, J.: Technic of Use of Removable Radon Seeds in Carcinoma of Tongue, Ann. Surg. **33**: 598 (May) 1926.

4. Radium Report of Memorial Hospital, New York, 1923, New York, 1924, p. 48.

5. Clark, W. E.; Morgan, J. D., and Asmis, E. J.: Electrothermic Methods in the Treatment of Neoplasms and Other Lesions, with Clinical and Histological Observations, Radiology **2**: 233 (April) 1924.

In these small lesions, which might be recorded as operable cases, the local lesion can be entirely eradicated in most of the cases. If the growth is of the papillary type, even better results can be expected.

The rapidity with which the disease extends, together with the negligence of the patient, has been responsible for the fact that more than half the cases are considered inoperable when first seen. This unfortunate class of patients has been denied any chance at all. The extensive nature of the surgical operation deters many skilful surgeons from attempting it, as has already been explained. The resort to radium as a palliative is handicapped from the beginning by the stage of differentiation of the cells, and only too often the reaction following the treatment renders the patient's condition more pitiable than ever.

It is in the latter 60 per cent of inoperable cases that the electrothermic method at least offers the patient a chance for his life, and certainly in most instances brings about marked alleviation of suffering.

In dealing with a disease as serious as this, anything short of the most radical procedure would be a waste of time and effort. It is necessary to remove the growth well wide of the diseased area, and to use a current of sufficient strength so that a very large amount of heat will penetrate the normal tissue well beyond the area actually destroyed.

The bipolar current should always be employed, a large indifferent pad and a needle as the active pole being used. This gives great precision of application, perfect control and unlimited destruction, depending on the experience of the operator and the current used. The treatment is carried out along the same lines as a surgical operation in the localized cases of cancer. We make a line of destruction beyond the diseased tissue, in that way isolating the growth from the healthy tissue, after which the entire growth is coagulated with the current and removed by scissors cutting through the coagulated tissue.

Even if the case has progressed to such an extent that the greater part of the tongue is infiltrated, and the glands of the neck do not show too much involvement, one is still justified in attempting to eradicate the disease. Total amputation of the tongue can be done rapidly and easily. A general anesthetic is necessary, which, of course, must be removed before the current is applied, as otherwise an explosion might result. The tongue is elevated by means of a suture through the end, and a straight needle employed. Beginning under the tongue and going from one side to another, a line of destruction is made deep into the tissue and towards the base. Each side of the tongue in turn is then coagulated and, if possible, a line of destruction is made across the base of the tongue by means of a curved needle. After a thorough application of the current, a pair of scissors is employed to cut through the coagulated area. After proceeding about half way, one should stop to make a reapplication of the current, after which the scissors may be used to remove the tongue, entirely. After the removal of the tongue the base is coagulated with a heavy current to secure deep penetration of the heat. The entire procedure can be accomplished within fifteen or twenty minutes. There is no loss of blood; the patient recovers rapidly from the anesthetic, and does not show evidence of surgical shock. The coagulated base will usually separate as a slough within a week or ten days' time. The mouth should be kept clean with frequent irrigations of an antiseptic solution, and the application of dichloramine.

In the treatment of these advanced cases, the nutrition of the patient is very important, and if the physical condition is bad, it is far better to do a preliminary gastrostomy. Indeed, it is a safe procedure in any extensive operation within the mouth, as it enables one to keep the patient well nourished, and even increases his physical strength to a considerable degree.

The danger of secondary hemorrhage must also be considered. It is a very serious matter for a cancer victim to suffer the loss of much blood. While secondary hemorrhage is unusual, it is far better to guard against it than to try to check it. For this reason, it should be a rule in doing a total amputation to ligate the external carotid on both sides. This may be done previous to the operation, or three or four days following. In the latter event, there is less likelihood of the collateral circulation being established. In lesions involving the posterior part of the tongue and limited to one side, a ligation of the external carotid on that side is indicated. If the lesion extends over to the other side, it is best to ligate both external carotids. If the lesion is on the anterior part of the tongue, or the anterior two thirds of the side of the tongue, it is a favorable location in which to check hemorrhage in case it should occur; in this location, therefore it is permissible to omit the ligation of the carotid. If the mouth is kept clean and dichloramine used, the slough, as a rule, will not separate prematurely, and the danger of hemorrhage is very much lessened.

The use of the electrothermic method in treating cancer of the tongue has been a great improvement over straight surgery, and, as far as the local lesion on the tongue is concerned, it can be permanently eradicated in most instances, even when quite extensive. This, however, does not always cure the patient, as there still remains the glandular metastasis to contend with; and herein lies the most important part of the whole problem. Unfortunately, there is little to offer in the way of distinct progress in the treatment of this frequent complication; reliance must be placed on the present-day method used with good common sense and mature judgment.

COMMENT

The treatment of the glands in these cases is still a debatable question with men whose opinion deserves the greatest respect holding divergent views. It will always be found that good common sense is a better guide in most questions than mere theory. If the glands in a given case are not involved, it would seem meddlesome surgery to attempt to remove them. The lymph glands are nature's filters and serve a useful purpose in limiting the extension of the disease, and if they are not involved they should not be removed. If already enlarged, it is hazardous to cut into tissue which is already infected with malignant disease, as it is almost impossible to remove every vestige of lymphatic tissue from the neck. If not enlarged, and malignant cells are in the ducts migrating to the glands, their removal eliminates nature's filters, the cells drain into the tissues of the neck, and in a short time the whole neck breaks down.

If there is any value at all in radium and roentgen-ray therapy it would seem that the best procedure would be a thorough irradiation of the neck, without removal

of the glands, especially when they are not enlarged. This treatment should be repeated at regular intervals over a long period, as the patient cannot be considered safe until at least a year has elapsed without evidence of involvement.

If the glands are already enlarged, external irradiation will seldom cause complete retrogression, and it is necessary to use, in addition to the external irradiation, buried radium element or radon seeds. This produces a more intense and concentrated effect, and greatly increases one's chances of controlling the disease. The technic must be exact and enough radiation given to destroy the disease and still not cause sloughing or breaking down of the glands. If the disease cannot be controlled in this way, it is questionable whether surgical removal can offer any greater chance of cure. If the surgeon is convinced that the glands should be removed, a better chance of success will be secured if the neck is irradiated before the operation, and repeated radiation treatment given over a long period of time after their removal.

The problem is a serious one, and only time and experience will ever solve it unless some day a specific for this dreadful disease is discovered. Until that time arrives, we can only use the means we have at hand and combine with them a generous application of common sense and good judgment.

SUMMARY

Cancer of the tongue is one of the most important problems of surgery today, and it is far from the final solution.

Straight surgery has many defects and is limited in its scope.

Irradiation has proved disappointing, and although it has a place in treatment, it frequently makes matters worse.

The electrothermic method is a decided improvement, and has opened the way for the relief of many formerly inoperable cases.

Success or failure depends entirely on the treatment of the glands of the neck, irradiation, without surgical removal, being the method of choice.

Medical Arts Building.

ABSTRACT OF DISCUSSION

DR. BARNET JOSEPH, New York: At the New York City Cancer Institute (under the direction of Dr. Isaac Levin) we find that in spite of all the education and the efforts to obtain early diagnosis of cancer of the tongue, the patients who come to us are mostly in class C; that is, they present a condition in which the metastasis is so extensive that it becomes a question whether we can do anything for them at all. In differentiating the type of lesion, we find, as Dr. Schmidt said, that the basal cell type is rare. Probably among 150 cases of carcinoma of the tongue, we found only about four, certainly not more than five, of basal cell carcinoma. It pays to differentiate the two main types of carcinoma of the tongue; one the ulcerated, and the other the papillomatous, because we find that the ulcerative type is more apt or rather, is sooner apt, to give metastasis than is the papillomatous type. I do not want to be premature in discussing the work that Dr. Levin has been doing on carcinoma of the tongue, in which he asserts that carcinoma of the anterior third of the tongue is the least malignant and the least apt to give the metastasis; that the middle type is more likely to, and that the base type is extremely likely to. However, in spite of that differentiation, we have decided (and that is the most important factor in treating carcinoma of the tongue) not to leave any of these patients without treatment, because we have seen in the class C cases of cancer of the base of the tongue that radium, surgery and roentgen-ray therapy have kept such patients, if not longer-lived, at least a great deal more comfortable. One cannot stress this point too much, in view of the fact that metastasis from carcinoma of the tongue seldom goes farther than the lymphatic collar of the neck. It seldom metastasizes to far away regions of the body. If one keeps "pounding" away at that region, one is bound to get a measure of success which I hardly believe can be duplicated in the treatment of class C cases anywhere else in the body.

DR. JAMES F. PERCY, Los Angeles: I have been greatly interested in Dr. Schmidt's paper, because I see many cases of cancer of the tongue, both early and late. I formerly employed surgical diathermy in the treatment of all accessible malignant growths, and although it is a vast improvement on cold knife surgery, I am quite sure that Dr. Schmidt will finally abandon it for the more widely applicable and effective hot knife. In a clinic held in Bellevue Hospital in 1882, I heard the late Dr. Van Beuren, while amputating a cancerous penis with a cautery knife, make the statement that "cancer abhors heat." Nothing has ever been said regarding the practical treatment of cancer with the cautery that is so universally true as this. Dr. Schmidt's remarks regarding the failure of radioactive methods, preoperative or postoperative, is in line with my own experience. They not only are of no value, but, as usually employed, are distinctly harmful both immediately and remotely. They generally cause a pitiable degree of posttreatment suffering and in addition seem to rob the tissues of whatever resistance they may normally possess to the redevelopment of the disease. I have not seen any patient suffering from cancer of the tongue or neck who has lost his cancer following irradiation; all have died within a comparatively short time. On the other hand, I have many patients alive and well following excision of the tongue by the hot knife in whom the tissue resistance has not been thwarted by radioactive methods. I am sure that Dr. Schmidt has also had this experience with his electrothermic methods. It should also be said that the hot knife and diathermy are the least painful, in both immediate and remote effects, of all known surgical methods. The gland bearing fascia should be removed from the neck with the cautery knife and both external carotids ligated. Immediately following this, the infiltrated part of all the tissues in the mouth should be removed with the cautery. No normally movable tissues should be left immovable because of the disease. Increasing experience with the cautery in this region has gradually taught that it is only rarely necessary to remove all of the tongue. Only the pathologically involved area need be sacrificed, but this should be done thoroughly.

DR. WILLIAM H. SCHMIDT, Philadelphia: Of course in dealing with cancer of the tongue, the results depend entirely on the type of the tumor. The papillomatous type is certainly not as malignant as the ulcerative, and the ulcerative will metastasize more quickly. In operating in these cases with the cautery, I use the high frequency current, the electrothermic method. If good results are being obtained with the cautery, better results will be obtained by the use of the electrothermic method, because not only can the diseased tissue be destroyed, but a certain amount of heat will penetrate beyond, which devitalizes malignant cells and makes it possible to remove the malignant tissue as a dead mass instead of as live tissue. The cautery is a decided advantage over the knife. I think, however, that the electrothermic method, with which one can use the high frequency method and drive the heat in, has a decided advantage over either of them.

Breathlessness and Cardiac Disturbances.—Breathlessness is, perhaps, the most easily observable sign of failing cardiac reserve. If you spy a boy or girl unduly breathless or unduly pale or unduly fatigued or with an unduly rapid pulse following moderate exercise, it would seem to me to be the part of wisdom to have that heart examined for a possible muscular weakness by the best physician you can find.—Cole: Exercise and the Normal Heart, *Am. Physical Education Rev.*, December, 1922, p. 479.

SEASONAL VARIATION IN GROWTH OF SCHOOL CHILDREN

BASED ON RECORDS OF EIGHT HUNDRED AND THIRTY-THREE CHILDREN IN HONOLULU, NEW YORK AND TORONTO *

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From at least as long ago as 1883, when Pastor Malling-Hansen [1] of Copenhagen reported his observations on the periodicity in the gains of weight among children who were inmates of an institution for the deaf and dumb, records have been published on seasonal variations in the rate of growth of children, and explanations of the causes have been offered by many authors.

The present study was undertaken with the hope of determining whether variations in the gains in weight of children of school age throughout the year appear to follow some biologic law, or result from accidental and possibly controllable factors.

Little, if any, doubt can be cast on the observations presented here on the growth of children in the cities

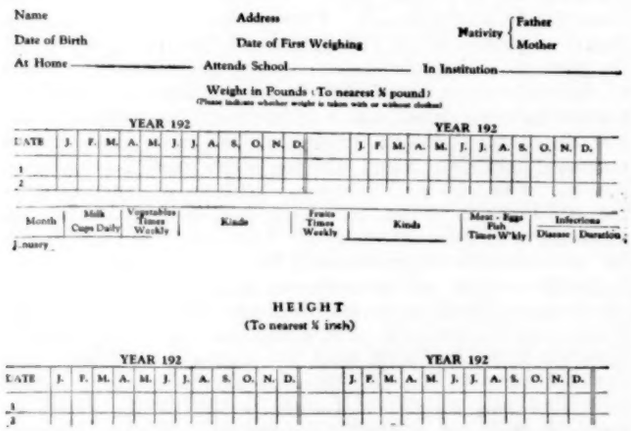

Chart 1.—Record sheet for obtaining data on height, weight, diet and incidental sicknesses by months of school children.

of the northeastern part of the United States. During infancy and commonly up to the age of 2 years, healthy children on suitable diets and under good environments, air, light, exercise and rest, gain each month at a gradually decreasing percental rate, whatever the month of birth.

Unsuitability of diet, in quality or quantity, unfavorable environments, and infections of any kind, regardless of the month of the year, decrease temporarily the rate of gain, cause an arrest in gain, or determine an actual loss of weight in infants.

Among healthy children between 2 and 5 years of age, living under good hygienic conditions and free from infections, in cities of our temperate and northern climates, it is not uncommon to observe monthly gains in weight throughout the year, but less often do we find such gains distributed with entire uniformity among the months.

Among children of school age (from 5 to 16 years) in northern cities in the United States, gains in weight from month to month are commonly found to be at a lower rate in the months from January to May than in the months from July to November, and it is very common to find children in apparent health holding the same weight for several months in succession or actually losing weight.

Gain in body height or length at all ages of infancy and childhood shows little or no observable seasonal variations, persisting commonly among apparently healthy children with great uniformity according to the age of the child, even though the weight of the child may be arrested for several months at a time, or weight be actually lost during the progressive increase in height.

The term seasonal or periodic variation in growth would seem to imply a regularity in the annual cycle of a child's life, which is expressed by changes in the rate of gain, consistently with the sequence of the seasons. At least, it is apparently in this sense that the term is ordinarily used.

Among the factors which may be thought to share in causing a variation from that regularity of growth, regardless of the months, which is characteristic of the performance of healthy infants, are the following, which may bear on all children:

Climatic changes, such as those of temperature, humidity and air movement, and of sunlight, both in quantity and in quality.

Dietetic changes, such as differences in the amount and quality of foods, particularly in those factors known to determine growth.

Prevalence of sicknesses, especially acute infections, which in many parts of the world show wide seasonal fluctuations in incidence.

Social and religious customs and observances, such as periods of entertainment, fasting, feasting and holidays.

Educational obligations, such as the period of obligatory school attendance, preparation for examinations, or vacation periods.

Possible, but as yet undetermined, variation in the functional activity of the endocrine glands, separately or together, according to the months of the year.

It seemed probable that observations on the diets, the occurrence of sicknesses, and the climatic factors, as

TABLE 1.—*Distribution of Records by Source*

	Honolulu	Toronto	New York City	Total
Records received	392	402	193	987
Records discarded because of age of child over 10 years or under 5 years	76	11	32 (119)	154
Records discarded because of incompleteness of data	..	17	18 (35)	
Records used for present study	316	374	143	833

TABLE 2.—*Race of Children Examined*

	New York City	Honolulu	Toronto
Jewish	41	..	23
Irish	37	..	18
Italian	26	..	1
Negro	19	..	..
United States	15	..	5
Scotch	3	..	50
English	1	..	66
Greek	1	..	3
Japanese	..	186	..
Chinese	..	90	1
Portuguese	..	20	..
Korean	..	12	..
Scandinavian	..	2	6
Roumanian	..	..	3
Hawaiian	..	6	..
Canadian	..	..	148
English Canadian	..	..	27
French Canadian	..	..	12
U. S. Canadian	..	..	14

* From the De Lamar Institute of Public Health of Columbia University College of Physicians and Surgeons.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Malling-Hansen, P. R.: Ueber Periodizität im Gewicht der Kinder an täglichen Wägungen, Kopenhagen, 1883, p. 35. An extensive and careful treatment of the seasonal period of growth.

well as the heights and weights of school children, might reveal answers to some at least of the questions and theories which present themselves, if a seasonal or biologic law of weight gains is declared to exist, or is denied.

With the cooperation of Dr. R. B. Faus of the Royal School at Honolulu, T. H., Dr. Frederick D. Bell of the Provincial Health Department at Toronto, and Mr. John C. Gebhart of the Association for Improving the Condition of the Poor in New York, records were obtained, on the forms shown in chart 1, of the height, weight, diet and incidental sicknesses by months for a year for each of 833 school children between the ages of 5 and 10 years. The conditions surrounding the measurements of the children were free from any gross errors of clothing and posture. The collection of the records was under the direct supervision of physicians, and of nurses acting under their control.

There were received altogether 987 records, of which 154 were either incomplete in essential details, or concerned children of younger or older age groups than the one selected for study (i. e., from 5 to 10 years of age). The original records were distributed by source as shown in table 1.

TABLE 3.—*Grouping According to Weight Fluctuations*

	Honolulu	Toronto	New York City	Total
Records showing a gain in weight during each month of the year, or stationary weight for not more than one month.....	110 (35%)	49 (12%)	9 (6%)	168 (20%)
Records showing an arrest in weight for two or more months consecutively, or a loss of weight for one or more months in a year.....	206	325	134	665

The children represented many race stocks. Their distribution by nativity of parents is given in table 2.

The rarity with which these children were found to have made an approximately steady gain from month to month for a twelve month period, and the frequency with which arrest in weight or loss of weight occurred among them, made it seem desirable to apply an arbitrary definition for the separation of those who behaved with something approximating regularity from the great majority of the children who lost weight or remained at a stationary weight for considerable periods.

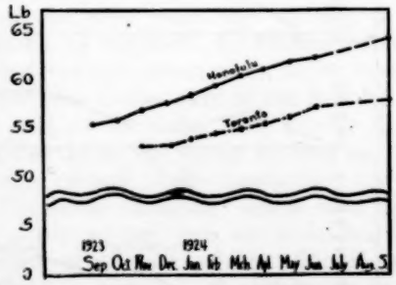

Chart 2.—Average increase in weight of twenty school children, by month, in Honolulu and in Toronto.

This distinction among the children is given in table 3.

In 168 instances (20 per cent), the children gained weight every month in the year, or showed a stationary weight for not more than one month of the twelve, whereas 665 (80 per cent) of the children showed either an arrest in weight for two or more months consecutively or registered a loss of weight for one or more months in the year. Enough children were found in both the Honolulu and Toronto groups, who made regular gains continuously throughout the twelve months, to offer the chance to make a graphic record of their composite weight gains. In these (chart 2) there appears little if any trace of a seasonal variation in the gaining of weight. There were only two or three of the New York children who showed any approximation to regular monthly gains. All the New York children were from poor tenement homes of a densely congested part of the city where the race stocks are almost exclusively Italian and Jewish. The forty children in Honolulu and Toronto with suitable diets and free from any sicknesses appear to exhibit normal growth curves, even though their number from among the total cases studied would suggest that such performance is exceptional rather than average. It would seem reasonable to assume that if any of the 833 children exhibit a record of healthy growth, affected only by biologically favorable factors, it must be those who have made continuous gains throughout the year; that is, some gain in each of the twelve months. A study of the distribution of the gain of these (112) children in the first five months of the year (January to May, inclusive) shows that among the nine New York children the January-May gains represented only 55.5 per cent of the gains occurring in the months of July through November; that among the thirty-three Toronto children the January-May gains were 75.2 per cent of the July-November gains, and that among the Honolulu children the January-May gains were 123.4 per cent of the July-November gains.

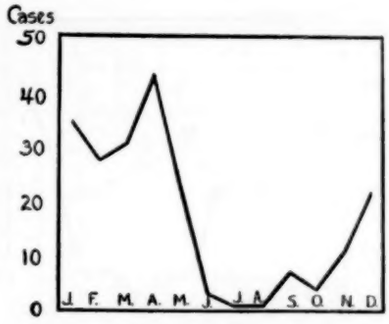

Chart 3.—Distribution of all instances of loss or arrest in weight by month of occurrence, in 209 cases in which sickness was reported.

Gains in the height of all the children in each of the three cities were so regular throughout the twelve months of observation in each case that reproduction of the records in tabular or graphic form seemed superfluous and likely to contribute nothing of value to the mass of information already published on this point. It is sufficient to record that no evidence was obtained suggesting that there is any seasonal variation in the gain in height of apparently healthy children, among whom for one reason or another irregularities in gain in weight are common.

It may be taken for granted that a drop in weight, or an arrest in weight for as much as two months, in a child of school age indicates that there are some unfavorable conditions which interfere with the addition in weight which normally accompanies increase in length of body.

Explanation for the failure to gain was sought in the records of illnesses and in dietary changes.

No significant changes from month to month or from season to season in the amount of food supplied, or in the character of foods used, could be found which appeared to justify an opinion that in this factor lay the cause of loss of weight or failure to gain.

Milk, green vegetables and fruit, together with such other foods as starches and meat or fish, and in sufficient amounts, appear to have been supplied to all the children, many of whom were under more or less continuous medical supervision through the health services of the schools, and by the monthly contact with the nurse or physician at the time of the weighings.

Irregularity in eating habits, as to time and amounts of food, are noted particularly among the Jewish children of New York, but their diets seem to have varied little throughout the year except for the greater use of fresh fruits eaten raw in the summer and fall.

The incidence of disease appears, however, decidedly significant, although records only of recognized infections have been made.

In the following table 4 and in chart 3 will be found the distribution of arrest or loss in weight and of sicknesses, where reported, by the month of the year according to the city where the children were observed. The high peak in April is due to a group of cases of chickenpox in Honolulu in that month.

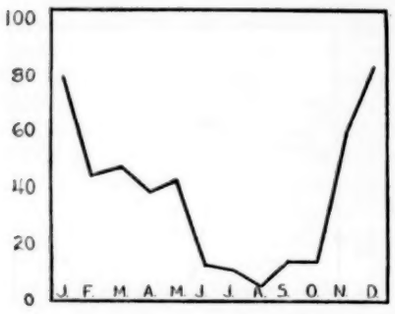

Chart 4.—Distribution of instances of loss or arrest of weight by months of occurrence in 456 cases in which no record of sickness was reported.

The sicknesses, which were not of great variety as reported, have been grouped under four headings: "colds"; acute communicable (reportable) diseases; nonspecific infections of the respiratory tract, including pharyngitis and tonsillitis, other than those reported as colds; all other sicknesses.

In 209 cases one or more sickness incidents were reported in children who showed loss in weight or arrest in weight for two or more months. The month of onset of the sickness is used in each instance in listing the incidence. The months when arrest in weight or loss in weight took place were those in which sickness occurred or in the next succeeding month.

TABLE 4.—*Distribution of Incidence of Arrest in Weight or Loss in Weight, by Months, and by Associated Sickness*

Cause		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Colds	New York City..	4	2	0	5	0	0	0	0	1	0	2	3	17
	Toronto.....	1	4	6	4	2	0	0	0	0	1	2	3	23
	Honolulu.....	3	2	1	5	0	0	0	0	1	0	2	2	16
	Total.....	8	8	7	14	2	0	0	0	2	1	6	8	56
Acute Communicable Diseases	New York City..	3	3	4	4	2	0	1	1	1	1	0	1	21
	Toronto.....	6	9	9	12	13	2	0	0	1	0	1	7	60
	Honolulu.....	5	0	2	10	0	0	0	0	2	0	1	1	21
	Total.....	14	12	15	26	15	2	1	1	4	1	2	9	102
Infections of the Respiratory Tract (Except Colds)	New York City..	9	5	4	0	0	0	0	0	0	1	1	1	21
	Toronto.....	2	3	2	2	4	0	0	0	1	1	2	4	21
	Honolulu.....	2	0	0	0	0	0	0	0	0	0	0	0	2
	Total.....	13	8	6	2	4	0	0	0	1	2	3	5	44
All Other Sicknesses..	New York City..	0	0	1	0	0	1	0	0	0	0	0	0	2
	Toronto.....	0	0	2	2	1	0	0	0	0	0	0	0	5
	Honolulu.....	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total.....	0	0	3	2	1	1	0	0	0	0	0	0	7
All Sicknesses Combined	New York City..	16	10	9	9	2	1	1	1	2	2	3	5	61
	Toronto.....	9	16	19	20	20	2	0	0	2	2	5	14	109
	Honolulu.....	10	2	3	15	0	0	0	0	3	0	3	3	39
	Total.....	35	28	31	44	22	3	1	1	7	4	11	22	209

In 456 additional instances in which there was arrest in weight for two or more months, or loss in weight, and in which there was no record of sickness or other recognized cause of interference with gain in weight, the distribution of these occurrences is shown by months of the year and by city in table 5 and chart 4.

It will be noted that there are 6.6 times as many instances (160:24) of loss of weight or arrest of weight connected with reported illness in the five months January to May as there are in the five months July to November. This is quite consistent with Porter's[2] observation that the monthly gains in weight among Boston school children in the first five months in the year average six times as much as the gains of these children in the last five months of the year.

Taking all of the 665 instances of arrest of weight for two months or more, or of loss of weight within a twelve month period, whether there is a definite and apparently correlated sickness reported or not, almost twice as many (415 to 212) are found in the first five months of the year (January-May) as in the five months July to November.

TABLE 5.—*Distribution of Weight Irregularities by Month and City*

	Total	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
New York...	73	16	11	6	3	0	4	6	2	1	2	9	13
Toronto.....	216	40	24	26	18	15	7	5	2	2	4	23	50
Honolulu....	167	24	10	16	18	28	2	0	1	11	8	28	21
Total.....	456	80	45	48	39	43	13	11	5	14	14	60	84

Characteristic records of monthly changes in weight in otherwise healthy children who developed some infection during a twelve month period are seen in chart 5.

In order to test a possible relation between temperature, humidity, sunshine, and the monthly gains in weight of children in the three cities, records of the weather bureau were obtained for the months of the particular years involved for each city.

In chart 6 the total hours of sunshine for each of twelve months are given together with the record of monthly gains in weight in each instance of an apparently healthy child, of the particular city, who was reported as free from dietetic errors or cases of illness during the same months. In spite of the marked differences in the seasonal distribution and amount of sunshine in the three cities, there is no apparent gross variation among the three children. It is recognized that total hours of sunshine does not accurately represent the possible relative growth promoting effectiveness of sunshine in cities of different latitudes for the various months of the year; but since we have no evidence of

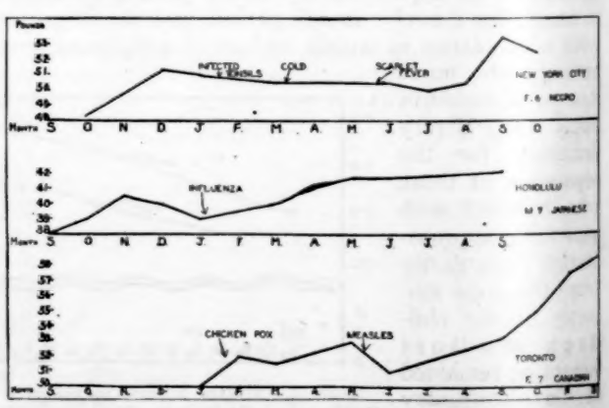

Chart 5.—Typical records of effect of acute infections on gain in weight.

2. Porter, T. W.: Am. J. Physiol. 52: 121 (May) 1920.

even presumptive value that the growth in weight of children of between 5 and 10 years of age is materially affected by seasonal variations in the amount of effective short or ultraviolet rays of the sunlight, we can with good reason ignore this factor in view of the negative evidence here presented.

As to temperature, absolute or relative, that is, effective temperature of the air as determined by air movement, humidity and temperature, our observations of weight and height are evidently too widely separated to be susceptible of any reasonable attempt at correlation with temperature.

Only by taking daily records of weight and effective temperature could evidence of any value be obtained on this point. It is worth calling to mind the observations of Malling-Hansen to the effect that the weights of children under the conditions in his institution in Copenhagen rise after a few days (five) of warm weather and remain stationary or fall after a similar period of cold weather.

COMMENT

Porter did a valuable service in calling attention in 1920 to the fallacy inherent in using mass statistics of monthly weighings of thousands of school children, according to the ages of the children in months, as a basis for establishing the normal performance of children of different ages in the matter of increases of weight.

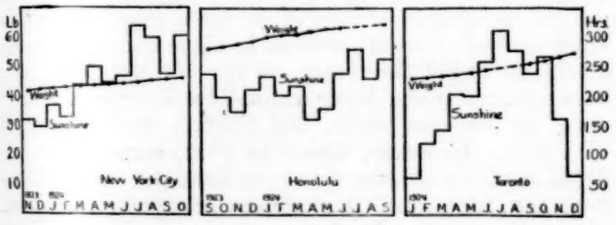

Chart 6.—Typical increase of weight of school child and total hours of sunshine, by month, in New York City, in Honolulu and in Toronto.

He made quite clear the superiority of assembling weights of children of the same age in months according to the month of the year when the weights are taken, by which method he disclosed the evidence that school children of whatever age, when taken in the mass in Boston, gain weight at a slower rate in the first half than in the second half of the year. But Porter did not carry his very discriminating study so far as to analyze the children's records individually, to learn whether it was the "seasonal variation" which was the common factor, or some adventitious or unfavorable factor of environment or disease which affected so large a number of children regularly at certain seasons of the year that their growth performance dominated by its fluctuating character the normal regular monthly gain in weight characteristic of the child free from handicaps.

The argument of Porter is shown in brief in charts 7, 8 and 9, but it is believed that no physician reasonably familiar with the growth habits of healthy school children will accept as a normal record the lower curve in chart 9, which offers a loss of weight for the two months consecutively of March and April as evidence of a typical seasonal variation in growth of presumably healthy children. From the records herewith presented, it would seem probable that the lower curve indicates the usual experience in the growth of school children, who are commonly handicapped by the unfavorable factors of housing in our Northern cities, school attendance and infections in the first four or five months of the year.

Malling-Hansen's observations may be briefly summarized as follows:

There are wide daily variations (2 pounds, or 0.9 Kg.) in the weight of children during the course of a day.

Activities, bathing and daily tasks have as much effect on weight as eating.

Weekly variations in the bill of fare are accompanied by periodic fluctuations in weight.

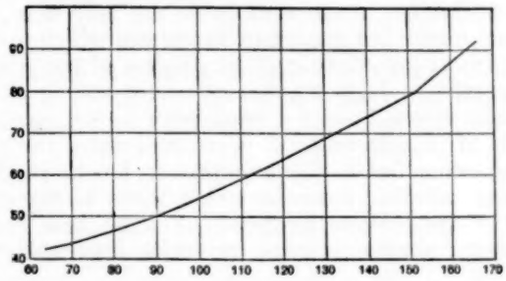

Chart 7.—The median weight of boys at each month of age from the sixtieth to the one hundred and seventy-sixth month, inclusive. In this chart, the months are not calendar months but months of age. The ordinates are pounds.

Arrest in weight gains or loss of weight commonly occurs from the first of May to the middle of July.

A period of greater gains occurs in August, September and October. Vacation time is one of rapid gain in weight. Periods of arrested weight or loss of weight appear to indicate unfavorable conditions for the child.

The cause of the great arrest and loss in weight in May, June and July, and similarly of the marked increases in the autumn months, must be sought in other factors than those of seasonal temperature alone.

The increase in the weight of the children is about twice as great in the period when the moon is passing from perigee to apogee as when it was moving away from the earth toward the perigee.

Gebhart,[3] in his study of "The Seasonal Variation in Growth of Italian Children in New York City," reports on 977 boys and girls from 2 to 12 years of age, and shows the periodicity in the average gains by calendar months, the spurt in the fall and the delay or arrest in the spring months. However, his chart (chart 7) of Italian boys, while showing slower gain in the first five than in the last five months of the year, is radically different from Porter's for Boston children, in the fact that a gain is registered for each month of the year among this group of tenement children under

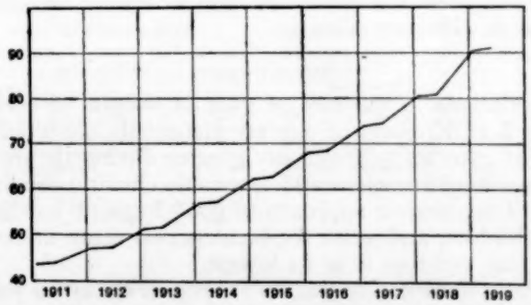

Chart 8.—The weights of boys born in 1905, distributed by months of the year. This is the true curve of growth by weight: it shows the seasonal variations. Compare this chart with chart 7, the curve of growth "old style," in which the seasonal variations are lost.

3. Gebhart, J. C.: Publication 132, New York Association to Improve the Condition of the Poor, New York, 1924.

intensive nutritional supervision, while the Boston children reported by Porter showed actually lower weights in April, May and June than in February and March—a situation hardly compatible with their continuous good health. Gebhart and Porter offer adequate evidence to disprove the assumption that seasonal changes in the weight of clothing was responsible for the variations in the weights and rate of gain that they record.

While Bleyer [4] reports that children under 1 year of age made their greatest gain in the months of August and September, and Hunt, Johnson and Lincoln [5] found the autumn to be the season of greatest growth among Jewish children, these authors do not take note of the various minor but important sicknesses which are commonly most prevalent at other seasons of the year than the months of largest gains in weight among children.

While Frank [6] finds a periodicity in the increase in length of infants under 2 years, and notes the sudden and extreme fall in the accretion in length in the hot summer months, those in which there is almost universally the highest incidence of acute intestinal disturbances among infants, he calls attention to the

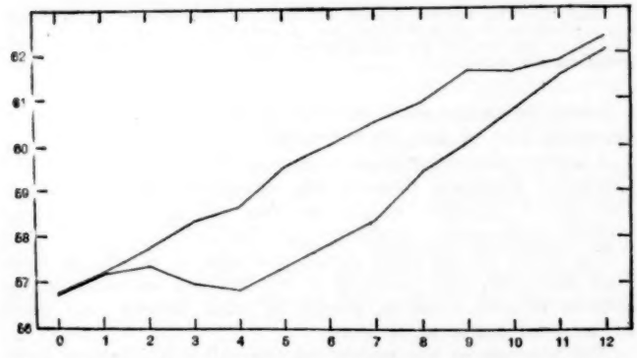

Chart 9.—The ordinates are pounds and the abscissas are months. The lower curve records boys' weights distributed by months of the year; the upper curve records boys' weights distributed by months of age.

inadequacy of evidence that this variation in growth is related to the changes in the seasonal vitamin content of the foods used by the infants he studied, and expresses the belief that there are several factors involved, for the proof of which studies should be made in different climates.

CONCLUSIONS

Variations in the rate of gain in weight of children from 5 to 10 years of age are commonly observed, the rate of gain being commonly greater during the months when school vacations and favorable climatic conditions permit the nearest approach to good hygienic conditions for children, and when the incidence of acute infections affecting children is at its lowest.

There does not appear to be any evidence to justify considering these seasonal variations of gains in weight as a normal biologic phenomenon for healthy children under favorable conditions of environment.

Among the possible determining factors of the variations in the rate of gain in weight of children of school age in Honolulu, Toronto and New York City, the incidence of infections, particularly those acquired through the respiratory tract, is believed to be of much importance.

Seasonal or periodic variation in weight accretion of children is probably an accidental phenomenon, not necessary or euthenic in character, but an expression of unfavorable conditions affecting the child.

A child who fails to gain in weight each month, at least up to the age of 10 years, is in all probability suffering from some form of infection or fatigue in which diet, housing and school attendance may play important contributing parts.

Groups of children living under favorable conditions can be found who, in the absence of infections or other sicknesses, exhibit a regular monthly gain in weight regardless of the season of the year.

4. Bleyer, A.: Arch. Pediat. **34**: 366 (May) 1917.
5. Hunt, John and Lincoln: Health Education and the Nutrition Class, New York, E. P. Dutton, 1922.
6. Frank, von Hildegard: Arch. f. Kinderh. **75**: 1-6, 1925.

DUODENAL STASIS

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Duodenal stasis is an undue retention of barium in the duodenum beyond the first portion, usually associated with dilatation of varying degree and with regurgitation, and is best observed by fluoroscopy or radiography. This condition has been frequently referred to in the literature as duodenal stasis, duodenal antiperistalsis, writhing duodenum, lagging of the duodenum, pendulum movement of the duodenum, and by other terms. Various authors have described a similar condition under the name of chronic duodenal ileus as a clinical entity being caused by mechanical processes, as adhesive bands, and traction on the ligament of Treitz. However, Case,[1] in 1916, stated that duodenal stasis or chronic duodenal ileus due to such factors are rare, and this statement agrees with our observations. Duodenal stasis is not a clinical entity but a radiologic sign seen in various conditions such as cholecystitis, cholecystolithiasis and duodenal ulcer, as will be shown later.

TABLE 1.—*Age and Sex*

Sex	Total	Percentage
Male	75	37.5
Female	125	62.5
	200	100
Ages		
Below 21	9	4.5
From 21 to 30	34	17
From 31 to 40	38	19
From 41 to 50	51	25.5
From 51 to 60	34	17
Above 61	34	17
	200	100

In order to ascertain the conditions in which this phenomenon is seen, we reviewed the records of 200 consecutive cases in which duodenal stasis was found. The age, sex, symptoms, physical examinations, laboratory observations and roentgen-ray results were recorded and tabulated. In fifty, or 25 per cent of these cases, operation had been performed and the pathologic condition recorded.

AGE AND SEX

Stasis was found about twice as often in women as in men; i. e., 62.5 per cent in the former and 37.5 per cent in the latter. This is probably to be expected, as

1. Case, J. T.: Roentgen Observations on the Duodenum, Am. J. Roentgenol. **3**: 314 (June) 1916.

stasis and regurgitation are most commonly seen in gallbladder disease, being about twice as frequent in females. It is most often found between the ages of 41 and 50 years. One fourth of the cases are in this group (table 1).

CONDITIONS MANIFESTING DUODENAL STASIS

The most common condition in which stasis and regurgitation are found is in gallbladder disease, either alone or associated with other lesions (table 2). It occurred in sixty-one instances in uncomplicated cholecystitis or cholecystolithiasis, and in thirty-three cases of cholecystitis associated with various other lesions, as duodenal ulcer or carcinoma. In twenty-two there was a questionable gallbladder involvement; and in eight others a probable gallbladder infection was combined with another finding. In one case a carcinoma of the gallbladder was found.

Duodenal ulcer was next in order of frequency, seen in twenty-four instances. In ten other patients this was combined with a chronic appendicitis, colitis and pathologic gallbladder (five cases in the gallbladder group). It was seen thirteen times in chronic appendicitis, four in probable chronic appendicitis and twenty-eight times when the appendical lesion was in conjunction with other gastro-intestinal pathologic conditions.

TABLE 2.—*Conditions Manifesting Duodenal Stasis*

	Number	Percentage
Pathologic gallbladder	61	30.5
Pathologic gallbladder and chronic appendicitis	17	8.5
Pathologic gallbladder and duodenal ulcer	8	4
Pathologic gallbladder and carcinoma of colon	2	1
Pathologic gallbladder and duodenal ulcer and chronic appendicitis	4	2
Pathologic gallbladder and carcinoma of pancreas	2	1
Carcinoma of pancreas	1	0.5
Probable pathologic gallbladder	22	11
Probable pathologic gallbladder and colitis	2	1
Probable pathologic gallbladder and chronic appendicitis	5	2.5
Probable pathologic gallbladder and duodenal ulcer	1	0.5
Duodenal ulcer	24	12
Duodenal ulcer and colitis	1	0.5
Duodenal ulcer and chronic appendicitis	2	1
Probable duodenal ulcer	2	1
Chronic appendicitis	13	6.5
Probable chronic appendicitis	4	2
Colitis (idiopathic)	5	2.5
Carcinoma of stomach	5	2.5
Pernicious anemia	1	0.5
Gastric ulcer	3	1.5
Gastric ulcer and chronic appendicitis	1	0.5
Probable carcinoma of stomach	1	0.5
Carcinoma of esophagus	1	0.5
Carcinoma of rectum	1	0.5
Abdominal arteriosclerosis	1	0.5
No diagnosis made	10	5.0

It will be noted that in ten cases, or 5 per cent, no etiologic factor could be demonstrated. Even in these cases we do not believe that the condition is primary or due to chronic obstruction of a mechanical type. In some of these cases the cause was no doubt overlooked. In others the patients were of the hyposthenic type and a relative duodenal stasis is normal to them, as is also the low hypotonic stomach and colon.

To study this subject from the opposite angle, we reviewed the roentgen-ray records of 200 consecutive gallbladder cases. Forty-five per cent disclosed stasis. Similarly in 100 consecutive cases of duodenal ulcer, 25 per cent, and in 100 consecutive cases of chronic appendicitis 14 per cent showed this condition to be present. These figures are somewhat low, as in many cases the lesion, such as a duodenal ulcer or chronic appendicitis, was so markedly outstanding that no mention of duodenal stasis was made.

Experimentally we [2] had an opportunity to examine the normal cap in eighteen persons, and not one case of duodenal stasis was noted. Of course this number is too few from which to draw any conclusions, but it gives a good idea of the relative infrequency in normal persons other than the extreme hyposthenic type.

SYMPTOMS

It can be seen from table 4 that the symptoms are varied. Some are characteristic of the primary disease, such as jaundice, pain in the right hypochondrium, and pain in the right lower quadrant, while others are common to various pathologic gastro-intestinal conditions, such as nausea, vomiting, belching and abdominal distress, frequently referred to by the vague term biliousness. We will concern ourselves with a consideration of the latter observations.

TABLE 3.—*Symptoms*

	Total Cases	Percentage
Constipation	96	48
Vomiting	80	40
Belching	74	37
Nausea	65	32.5
Abdominal distress	57	28.5
Anorexia	51	25.5
Loss of weight	43	21.5
Headache	40	20
Weakness	32	16
Heartburn	34	17
Nervousness	14	7
Jaundice	17	8.5
Itching	4	2
Fainting	3	1.5
Pallor	1	0.5
Diarrhea	15	7.5
Pain:		
Epigastric	64	32
General abdominal	56	28
Right hypochondrium	34	17
Lower right quadrant	21	10.5

In a previous paper on radiologic observations in chronic appendicitis, we [3] listed the symptoms of this pathologic picture. This corresponded roughly with those of table 3. The same symptoms will be found in gallbladder disease, duodenal ulcer, and other involvements of the digestive tract.

TABLE 4.—*Physical and Roentgen-Ray Observations*

Physical Observations		Roentgen-Ray Observations	
Tenderness:		Stomach type:	
Right hypochondrium	67	Orthotonic	130
Epigastric	32	Hypotonic	56
Right lower quadrant	31	Hypertonic	8
Left hypochondrium	10	Duodenal defect	46
General abdominal	7	Gallbladder seat	61
Lower left quadrant	3	Gallbladder shadow	73
Liver enlarged	29	Tender gallbladder	52
Heart enlarged	29	Chronic appendicitis	43
Abdominal rigidity	23		
Jaundice	17		

With so many conditions giving identical clinical histories, there must be a common factor underlying such reactions. This common factor is undoubtedly duodenal stasis. Numerous workers have demonstrated beyond a doubt that irritation of the duodenum will produce a train of symptoms as noted in table 3. Ivy, Vloedman and Keane [4] showed that nausea and the headache of hunger are duodenal in origin. Keeton [5] observed that stimulation of the duodenum

2. Arens, R. A., and Bloom, A. R.: Rôle of Temperature in Filling of Duodenal Cap, Radiology **6**: 34 (Jan.) 1926.
3. Arens, R. A., and Bloom, A. R.: Normal and Pathological Appendix, Radiology **5**: 513 (Dec.) 1925.
4. Ivy, A. C.; Vloedman, D. A., and Keane, J.: The Small Intestine in Hunger, Am. J. Physiol. **67**: 124 (Dec.) 1923.
5. Keeton, R. A.: Nausea and Related Sensations Elicited by Duodenal Stimulations, Arch. Int. Med. **35**: 687 (June) 1925.

produced nausea in twenty-six of a series of sixty patients, dizziness in five, and symptoms referable to the head and neck in nine. He concluded that nausea results from a motor dysfunction of the duodenum, most probably a pathologic antiperistalsis. Alvarez [6] explained the heartburn, belching, coated tongue, foul breath and biliousness noted in cholecystitis, ulcer, chronic appendicitis and colitis as a reverse gastrointestinal peristalsis. Lehman and Gibson [7] and Ivy [8] have shown that stimulation of the duodenum experimentally produced antiperistalsis. Wheelon [9] and his associates had seen belching so frequently in duodenal stasis that they would predict the symptom before it was volunteered by the patient.

Vomiting, next to constipation, was the most frequent symptom complained of. Eighty patients reported this. Nausea was present in sixty-five and belching in seventy-four. Headache was noted in forty, anorexia in fifty-one, weakness in thirty-two, heartburn in thirty-four, nervousness in fourteen and abdominal distress or biliousness in fifty-seven.

Abdominal pain was a very frequent complaint. This varied from that generalized over the entire abdomen to that localized over the epigastrium, gallbladder region and to the right lower quadrant. Fifty-six experienced generalized discomfort or pain; sixty-four noted this symptom in the epigastric region; twenty-one experienced pain in the lower right quadrant, and thirty-four in the right hypochondrium.

PHYSICAL AND LABORATORY OBSERVATIONS

On physical examination (table 4), tenderness was found most often in the gallbladder region (sixty-seven instances). Next in order, it was localized in the epigastrium thirty-two times; lower right quadrant, thirty-one; left hypochondrium, ten, and lower left quadrant, three. Generalized abdominal tenderness was found in ten persons. Rigidity, localized either to the right side or over the entire abdomen, was seen in twenty-three. The liver was enlarged in twenty-nine cases, and the heart enlarged in the same number of cases; jaundice occurred in seventeen.

The red count was between 4 million and 5 million in 144 instances, and below this in twenty-nine. In 109 cases, the white count was between 5 and 10 thousand, in sixty-eight between 10 and 20 thousand, and in seven above 20,000. Blood in the stools was noted in twenty cases, and mucus in twenty-one.

Roentgen-ray examination revealed 130 orthotonic, fifty-six hypotonic and eight hypertonic stomachs.

In forty-six patients the cap was found to be defective, in seventy-three a gallbladder shadow was outlined in the primary film, and in sixty-one, a gallbladder seat was impressed into the duodenum. Tenderness in the gallbladder region, localized on fluoroscopic examination, was noted fifty-two times. The appendix remained filled an undue length of time and was markedly tender in forty-three instances.

OBSERVATIONS AT OPERATION

Of the 200 cases, fifty, or 25 per cent, came to operation. Examination of tables 2 and 3 will show how closely the pathologic check-up (table 6) agrees with our statistical study based on the roentgen-ray observations and clinical histories. Sixty-six per cent of the patients had an involvement of the gallbladder with or without some other lesion. The figures on duodenal ulcer are low because, in the first place, this condition does not come to operation as often as do biliary tract infections, and, as noted previously, when the lesion was clearly demonstrated no attention was paid to stasis. In seven cases the appendix was pathologic, although in nine more this was in association with gallbladder disease. Cancer was seen in three instances.

Reviewing the physical observations (table 7), there was tenderness in the gallbladder region in twenty-six cases, and tenderness over McBurney's point in thirteen. In twenty-six patients the white count was over 9,000.

TABLE 5.—*Operative Results*

Chronic cholecystitis	12
Cholecystolithiasis	8
Chronic cholecystitis and chronic appendicitis	3
Cholecystolithiasis and chronic appendicitis	2
Chronic catarrhal cholecystitis and detrocecal appendicitis	1
Chronic catarrhal cholecystitis and subacute appendicitis	1
Chronic cholecystolithiasis and subacute appendicitis	1
Acute cholecystitis and chronic appendicitis	1
Subacute cholecystitis	1
Chronic cholecystitis and duodenal ulcer	1
Carcinoma of gallbladder	1
Duodenal ulcer, chronic cholecystitis and chronic appendicitis	1
	33
Duodenal ulcer	1
Duodenal ulcer and chronic appendicitis	2
Pyloric ulcer and chronic appendicitis	1
	4
Gastric ulcer	3
Acute appendicitis	3
Subacute appendicitis	1
Chronic appendicitis	2
Chronic appendicitis and atrophic gallbladder	1
Chronic cholecystitis and carcinoma of colon	1
Generalized carcinoma	1
Carcinoma of stomach	1

Reviewing the roentgen-ray observations, a gallbladder shadow, seen on the primary films, on which we base our diagnosis, was seen in twenty-four cases, a gallbladder seat pressing on the duodenum in fifteen, and tenderness of the gallbladder region localized on fluoroscopic examination in seventeen. Contrasting this with the finding of duodenal stasis in all these cases, it can be seen that we relied on our secondary observations, especially stasis, in a large number. In fact, in those cases of stasis in which a duodenal ulcer, chronic appendicitis, a malignant or any other definite lesion is ruled out, we lay more stress on the value of a faint gallbladder shadow on the primary films than when this is absent. Duodenal defects were noted in ten cases, defects of the stomach in three, and chronic appendicitis in nine.

TABLE 6.—*Physical Observations in Operative Cases*

Physical Observations		Roentgen-ray observations:	
Epigastric tenderness	10	Gallbladder shadow	24
Jaundice	6	Seat	15
Tenderness right lower quadrant	13	Tenderness of gallbladder	17
Tenderness of gallbladder region	26	Defect in stomach	3
Tenderness of left lower quadrant	5	Defect in duodenum	10
Abdominal rigidity	6	Appendix filled and tender	9
White count:			
Between 5 and 8 thousand	19		
Between 10 and 12 thousand	17		
Between 13 and 15 thousand	4		
Between 15 and 20 thousand	5		

COMMENT

It is our conviction that duodenal stasis is due to a duodenitis secondary to an infection in some other por-

6. Alvarez, W. C.: The Syndrome of Mild Reverse Peristalsis, J. A. M. A. **69**: 2018 (Dec. 15) 1917.
7. Lehman, E. P., and Gibson, H. V.: Observations in a Case of Jejunal Fistula, J. A. M. A. **82**: 1918 (June 14) 1924.
8. Ivy, A. C.: Am. J. Physiol. **46**: 340 (July) 1918.
9. Wheelon, Homer: Symptoms Associated with Duodenal Retention and Reverse Motility, J. A. M. A. **86**: 326 (June 30) 1926.

tion of the gastro-intestinal tract. This conclusion is based on an analogous observation seen during the administration of a contrast clysma in cases of colitis, in which one frequently sees active regurgitation of the barium under the fluoroscope. That this duodenitis is secondary to other gastro-intestinal lesions has been demonstrated by the work of Kodama,[10] who has shown by interesting experiments the direct lymphatic connection between the gallbladder and the duodenum. In a previous paper we[11] demonstrated the frequency of multiple abdominal lesions and called attention to a vicious circle also described by Lyon and Swalm.[12] This view is being substantiated more and more frequently in the literature.

Arens,[13] in 1923, stated that duodenal stasis has often given the only sign indicating a pathologic condition of the gallbladder, but added that it may also be present in duodenal ulcer, pyloric ulcer, chronic appendicitis, colitis, arteriomesenteric occlusion, and other conditions. Wheelon[9] agrees with Friedman, Strauss and Arens[14] that stasis is one of the indirect findings of gallbladder disease. Henderson[15] described duodenal antiperistalsis in hookworm disease. This is due to a duodenitis resulting from the hookworm bites. Except in the condition described by Henderson, hookworm infestation, a primary duodenitis is rarely seen. This is corroborated in our observations of very few cases of duodenal stasis without any accompanying lesion. We have not seen any cases of duodenal ileus produced by chronic obstruction, and believe with Case that this condition is rare.

CONCLUSIONS

1. Duodenal stasis is the fluoroscopic or radiographic observation of undue retention of barium in the duodenum beyond the bulbus duodeni usually associated with dilatation of varying degree and with regurgitation often back into the cap.

2. Stasis is not a clinical entity but is evidence of a duodenitis secondary to cholecystic disease, duodenal ulcer, chronic appendicitis, colitis, and other gastro-intestinal conditions.

3. Various symptoms, such as abdominal distress, nausea, vomiting, headaches and belching, usually seen in all gastro-intestinal lesions, are the subjective evidence of duodenal antiperistalsis objectively demonstrated by stasis.

4. Observations at operation corroborate in a high percentage of cases the various conditions in which duodenal stasis is found.

5. Chronic duodenal ileus due to mechanical obstruction is rare.

10. Kodama, S.: Surg. Gynec. Obst. **43**: 140 (Aug.) 1926.
11. Arens, R. A., and Bloom, A. R.: Radiology **9**: 60 (July) 1927.
12. Lyon, B. B. V., and Swalm, W. A.: Therapeutic Value of Non-surgical Drainage of Biliary Tract, J. A. M. A. **85**: 1451 (Nov. 14) 1925.
13. Arens, R. A.: Gallbladder Disease, with Special Reference to Fluoroscopic Finding, J. Radiol. **4**: 74 (Aug.) 1923.
14. Friedman, J. C.; Strauss, A. A., and Arens, R. A.: A Clinical Radiological Study of the Gallbladder, Radiology **5**: 93 (Aug.) 1925.
15. Henderson, W. F.: Duodenal Antiperistalsis, J. A. M. A. **85**: 1462 (Nov. 7) 1925.

Equalization of Growth and Development.—Equalization of growth and development may also be considered a legitimate aim of gymnastics, closely associated with posture training. The exercises selected and defined with a view to their effectiveness as a means of postural and general subjective motor training will also exert the most favorable influence on growth and be conducive to a harmonious muscular development. When necessary, these should be supplemented by special exercises of a more powerful and localized character. —Skarstrom: Gymnastic Teaching, p. 88.

Clinical Notes, Suggestions and New Instruments

ANALYTIC BUCKET FOR QUICK QUALITATIVE ANALYSIS OF GASTRIC CONTENT AND FOR DIFFERENTIATING BLEEDING GASTRIC AND DUODENAL ULCERS

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While engaged in my work, which requires a large amount of gastric analysis, I have encountered many difficulties and inconveniences. These I shall briefly enumerate in order to emphasize the advantages which are obtained through the use of the apparatus and methods I am about to describe.

One of the greatest drawbacks of the old method is the difficulty of obtaining a satisfactory specimen of fasting content because of the frequent failure of the stomach tube to reach the lower level of the stomach. Even if a duodenal tube is used, it often happens that the specimen obtained is insufficient for the number of tests necessary for a proper analysis of the content, a difficulty likewise encountered when a stomach tube is employed. This frequent failure to obtain a sufficiently large specimen is also characteristic of the use of the stomach tube after an Ewald test meal, a difficulty which even the most skilful technic often fails to eliminate. Finally, even if a satisfactory specimen of the gastric content has been obtained in the face of all these handicaps, it is necessary to perform a long series of tests which require a good deal of time and work. In addition, the practice of examining the feces for traces of blood in cases of gastric or duodenal ulcer lacks the positiveness which is so desirable for such a test. Thus, the blood found in the feces may not be the result of a bleeding ulcer but of a condition in the long intestinal tract from the duodenum to the rectum, or else it may be caused by some bleeding due to hemorrhoids and other conditions of the rectum itself. Even were we to grant that the blood found in the stool comes from a bleeding ulcer of the stomach or of the duodenum, we then face the difficulty of determining whether it is from a gastric or a duodenal ulcer.

In attempting to eliminate these difficulties, I have devised an apparatus which I believe has solved the problems raised above, and in presenting it to the medical profession I trust that it will simplify the work of others in this respect as it has done mine. The apparatus I present is a modification of my duodenal bucket,[1] the principal characteristics of which are its three part composition, spiral arrangement and capsule shape, with the bottom third of the bucket three times heavier than the rest of it.

On the sides of the bottom portion of this bucket there were drilled five cavities, which, for purposes of convenience, will be numbered from 1 to 5. All these cavities are filled with melted paraffin, which serves to hold the various strips of gauze attached to these cavities. Thus, to cavity 1 is attached a strip of Toepfer's solution (dimethyl-amino-azobenzene), to cavity 2 a strip of phenolphthalein, to cavity 3 a strip of blue litmus, to cavity 4 a strip of saturated solution of benzidine, and to cavity 5 a strip of plain gauze. All these strips are prepared especially for this purpose and thus their attachment requires only a few seconds (fig. 1).

To make an analysis of the contents of the stomach, the bucket is swallowed in the usual manner until about 25 inches from the tip. For an examination of the contents of the duodenum, the ordinary procedure of biliary drainage is followed. On withdrawal of the bucket, after the addition of a few drops of hydrogen peroxide to the strip of saturated solution of benzidine (cavity 4) and of a few drops of concentrated nitric acid to the strip of plain gauze (cavity 5), the readings on the bucket are interpreted as in the accompanying table.

The following constitutes an explanation of the interpretation of the results outlined:

1. If the strip of Toepfer's solution (orange-yellow) turns to a reddish color it is an indication that free acid is present.

1. Einhorn, Moses: A New Tip for Gastroduodenal Tubes, J. A. M. A. **86**: 1615 (May 22) 1926.

Absence of change while indicating that there is no free acid present does not reveal whether or not there are any combined acids or other acids present. Here the blue litmus (cavity 3) serves as a control, for if when the Toepfer strip remains unchanged the blue litmus turns to pink, we have proof that there is an acid medium present, probably combined acid (see reading 3).

Fig. 1.—Analytic bucket.

2. Phenolphthalein is colorless in an acid medium and changes to scarlet in an alkaline medium. Since litmus is blue in both a neutral medium and an alkaline medium, the change of the phenolphthalein to scarlet is the control for the litmus in indicating an alkaline medium (see reading 4).

3. Blue litmus changes to pink in any acid medium and is unchanged in a neutral or alkaline medium. It thus serves as a control for the Toepfer strip in that when the Toepfer strip fails to change because of the absence of free acid the blue litmus may still indicate a combined or other acid.

4. Number four is a strip of gauze dipped in a saturated solution of benzidine. If after the removal of the bucket and on the addition of a few drops of hydrogen peroxide it changes to deep blue, it is an indication that blood is present. Failure to change indicates the absence of blood.

5. Number five is a strip of plain gauze. If after the removal of the bucket and on the addition of a few drops of concentrated nitric acid it turns first blue or green and then red, it is an indication of the presence of bile. Failure to change means that bile is absent. Ordinarilly, there is no bile in the stomach and this test should be negative. If bile is revealed, it is an indication that there is regurgitation of bile into the stomach (see readings 2 and 4).

As stated before, this apparatus offers a more satisfactory method of determining whether or not there is a bleeding ulcer and if so whether its location is in the stomach or in the duodenum. To determine whether there is a bleeding ulcer of the stomach, the patient is placed in a sitting position and the tube is swallowed for a distance of about 25 inches from the tip. Care should be taken to eliminate possible errors due to some extraneous factors, as, for instance, bleeding from the mouth. On withdrawal of the bucket, the strip of saturated solution of benzidine (cavity 4) is tested with a few drops of hydrogen peroxide. If after the addition of the hydrogen peroxide the strip turns blue, it is an indication that there is blood in the stomach. Failure to turn blue indicates the absence of blood.

If it is desired to test the duodenal contents for blood, the ordinary procedure of biliary drainage is followed. On withdrawal of the bucket, the foregoing test is applied to the strip of saturated solution of benzidine (cavity 4) and the results are judged in the same manner. In cases in which the stomach test reveals an acid medium, a strong indication of bile in cavity 5 is good evidence that the bucket has entered the duodenum. In addition, the following is suggested as another method of control if the examiner is still uncertain as to whether the bucket has entered the duodenum. In this instance, we apply the principle often used in pharmacologic preparations when, in order to prevent the preparation from being dissolved in the stomach, a coating of phenyl salicylate dissolvable only in the alkaline medium of the duodenum is applied. In the same manner, cavity 4 is covered with a thin layer of phenyl salicylate and thus is protected from the acid medium of the stomach. Also, in order for the benzidine strip to be affected the coating of phenyl salicylate must be dissolved, an occurrence which can happen only in the duodenum. Thus, if on withdrawal of the bucket the phenyl salicylate has been dissolved, we can be assured that the tip has entered the duodenum. The control test outlined above is still in need of further verification. When an examination of the stomach contents shows the presence of blood, I have been unable to devise any method of determining whether or not there is any bleeding in the duodenum, for (1) the stomach content positive for blood on its passage through the duodenum affects the duodenal content and (2) when the bucket is withdrawn it must pass through the stomach and therefore records the reaction of the blood that is there. The foregoing tests for detecting blood should be performed two or three times in order to insure the accuracy of the results. On completion of the examination, the paraffin and the attached gauze strips can be removed with a sharp-pointed instrument.

Formerly in order to make a qualitative examination under the Ewald test, it was necessary to make many separate tests in order to make a chemical analysis of the gastric content, a procedure which necessitated a large specimen (often unprocurable) and a great deal of time and work. To eliminate these inconveniences, I have devised a special holder (fig. 2*A*) constructed so as to grasp a U-shaped wire on which are slipped specially prepared strips of Toepfer solution, phenolphthalein, blue litmus, saturated solution of benzidine and others (fig. 2 *B*).

Interpretation of Readings

	Cavity 1 (Toepfer's Solution)	Cavity 2 (Phenolphthalein)	Cavity 3 (Blue Litmus)	Cavity 4 (Sat. Sol. of Benz.)	Cavity 5 (Plain Gauze)	Indicates
Reading 1.....	Red	No change	Pink	No change	No change	Free and combined acid present; blood and bile absent
Reading 2.....	Red	No change	Pink	Blue	First blue or green, then red	Free and combined acid present; blood and bile present
Reading 3.....	Orange-yellow (no change)	No change	Pink	No change	No change	No free acid present; acid medium, probably combined acid; no blood or bile present
Reading 4.....	Orange-yellow (no change)	Scarlet	Blue (no change)	No change	First blue or green, then red	Alkaline medium; no free, combined or other acids present; bile present (indicates regurgitation from duodenum)

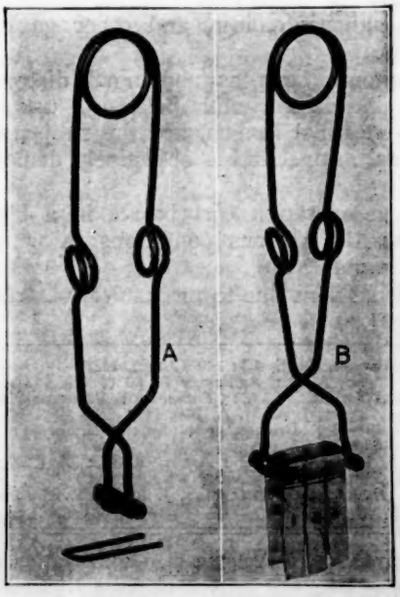

Fig. 2.—Holder: *A*, with wire; *B*, with prepared strips.

In order to make a qualitative examination of the gastric content, all that is now necessary is to dip this holder and the attached strips into the specimen and on withdrawal to interpret the results under the tests and instructions outlined above.

ADVANTAGES OF THE APPARATUS

1. By using this apparatus it is now possible to analyze the fasting content of the stomach without the necessity of removing a specimen.

2. By means of the fractional-method examination, the desired content and also the final reaction of the stomach may be obtained.

3. In cases of gastric ptosis in which the stomach tube cannot be used, the apparatus gets the desired specimen and also furnishes a quick qualitative analysis.

4. There is less discomfort for the patient and less injury to the mucosa of the stomach and the esophagus in the use of my apparatus than with any other duodenal tube or the ordinary stomach tube.

5. In performing biliary drainage, we can now obtain an analysis of the duodenal content without the necessity of a special examination.

6. This apparatus enables us to detect a bleeding ulcer in a more accurate manner than was formerly possible.

7. In some instances, we can also differentiate bleeding ulcers as to location in the stomach or duodenum.

8. The combination of all the test papers enables us to make a qualitative examination in one operation.

9. A quick approximate quantitative analysis can be obtained by the intensity of the changes in color.

286 West Eighty-Sixth Street.

Therapeutics

LIVER DIET IN ANEMIA

While liver seems to be presenting increasing evidence of its value in the treatment of anemia, physicians everywhere are finding it difficult to keep patients contented and happy while they are taking it. One patient who was told that she must continue indefinitely to consume about a pound of liver daily, said: "Doctor, it can't be done. I can't even take liver every day, and certainly not for every meal." This state of affairs is due partly to the fact that few people can cook liver in any other way than by frying, and the following recipes are presented in the hope of alleviating this truly monotonous and not very appetizing dietary.

The recipes are taken from English and French sources, as in these countries liver is a much more popular article of food than it is in the United States.

FRENCH WAYS OF COOKING LIVER

1 pound of liver
1 slice of bread *grated*—this means grated, not crumbled
1 tablespoonful of chopped parsley
½ teaspoonful of salt
¼ teaspoonful of pepper
A very thin slice of ham

Wash the liver well and cut into thin slices; put into casserole; sprinkle the bread crumbs over it, then the parsley, pepper and salt. Cut the ham into strips and lay it on top, then pour in one teacupful of cold water. Bake in oven for half an hour.

Another French recipe is as follows:

1 pound of calf's liver
3 tablespoonfuls of grated bread crumbs
4 large mushrooms, chopped
1 medium-sized onion finely chopped
2 sprigs of parsley finely chopped
½ teaspoonful of salt and a pinch of pepper

Cut the liver into slices half an inch thick, and sprinkle each slice with the mixture of bread crumbs, mushrooms and seasonings; put in a casserole, pour over it one-half pint of cold water or good soup stock, and bake in a slow oven for three quarters of an hour.

LIVER MOLDS

This is an English recipe:

Take 1 pound of liver, boil it and grate it with three strips of bacon. Mix it with about one fourth of the amount of bread crumbs, the yolks of two eggs and seasoning to taste. Steam in buttered molds.

LARDED LIVER

This recipe is taken from a Scottish cook-book:

Take a lamb's liver and lard it in rather close rows, covering the whole upper surface. Place it in a deep casserole with chopped onions, carrots, slices of fat bacon, salt, pepper, and sweet herbs (sage, etc.). Cover with water or a good soup stock. Cook in a moderate oven for forty or fifty minutes. Turn out on a hot dish. Thicken the liquor slightly with flour and butter, adding a small amount of lemon juice and paprika.

MINCED LIVER

This, also, is a British recipe.

Boil 2 pounds of liver till it is firm enough to chop easily; then mince it rather finely with a little bacon. Chop a Spanish onion and fry slowly in butter or bacon fat—just long enough to make it soft; then add the liver, season very slightly with salt and pepper and cook slowly, stirring continually for ten or twelve minutes. Then add a cup of soup stock and a tablespoonful of chopped parsley and a very little Yorkshire relish (this last item may be omitted). Cover closely and let simmer gently for about an hour. Serve on toast.

CALF'S LIVER WITH FINE HERBS

This is a French recipe taken from an old English cook-book.

1 calf's liver
1 bunch of savory herbs, including parsley
2 chopped shalots (onions may be used instead, but they should be parboiled before chopping)
1 teaspoonful of flour
1 tablespoonful of vinegar
1 tablespoonful of lemon juice
¼ pint of water
Pepper and salt to taste

Cut the liver into slices, dip in flour, and fry in butter till a light gold color. Take out of pan and keep hot.

Mince the herbs very fine, put in frying pan, add a little more butter, add the remaining ingredients, simmer gently until the herbs are cooked, and then pour over liver.

CALF'S LIVER LARDED AND ROASTED

Take one calf's liver and lard it. Put it into vinegar with an onion cut in slices, parsley, thyme, bay leaf and a little salt and pepper. Let it remain in this pickle for twenty-four hours, then roast and baste it frequently with the vinegar. Serve it with brown gravy or a sauce made with chopped herbs. The time required for roasting is rather more than an hour.

MOCK DUCK

This is a Canadian recipe:

Take a fresh calf's liver and stuff with duck dressing (sage and onions, which should be parboiled before being mixed with the other ingredients). Put the stuffed liver in a pan, cover with strips of bacon and bake for two hours, basting frequently with the fat from the bacon strips.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ERYSIPELAS STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1927, p. 337).

Parke, Davis & Co., Detroit.

Erysipelas Streptococcus Antitoxin Refined and Concentrated-P. D. & Co.—This antitoxin is prepared by immunizing horses with cultures of streptococcus isolated from erysipelas. The blood serum is withdrawn from the immunized animals and is concentrated and refined by methods similar to those used for other antitoxins. The antitoxin is standardized by determining how many skin test doses of toxin each cubic centimeter of the antitoxin will neutralize. The potency of the marketed product is declared in "units," a unit representing the amount of antitoxin required to neutralize one skin test dose of toxin. The product is claimed to possess both antitoxic and antibacterial properties. It is marketed in packages of one piston syringe containing 500,000 units.

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SATURDAY, OCTOBER 15, 1927

THE DIETARY DEFENSE OF SPINACH

In a review of current dietary practices in various parts of the world, a recent writer [1] has remarked that in a civilized country where food is abundant and people are prosperous, people tend to cater to the sense of taste, and in so doing frequently spoil their diet through an unwise selection of food; in countries where food is scarce and few articles are available, they tend to regard food mainly as an agency to relieve suffering through allaying the pangs of hunger. In the latter case, he adds, the diet is generally faulty because of its simplicity and the absence of an effective supplemental relation among the different articles eaten. The same writer has argued, particularly on the basis of experimental studies on animals, that milk and the leaves of plants occupy a unique position among the available foods, in that they are so constituted as to correct, when suitable amounts are included in the diet, the defects of cereals, tubers, roots and meats. Accordingly, McCollum has designated the corrective products as "protective foods"—a term that has attained widespread use. He argues that too little of the protective foods, milk, the leafy vegetables and fresh fruits is eaten, and that a movement toward stimulating the consumption of these classes of foods would go far toward effecting that improvement in our national health standards which the many agencies concerned with the public health are seeking.

The program for improved nutrition through the institution of more rational dietary habits has already found widespread acceptance, particularly in relation to the child welfare movement. Children are being brought up to drink their milk and eat their greens with almost military precision and a crusader's ardor. Some testimony of this is found in the public announcement of the completion of a community demonstration in child health work under the auspices of the Commonwealth Fund in a western city. A review of the alleged benefits as recorded in the daily press [2] offers the comment that "Fargo consumes ten times as much spinach now as before the schools started to teach the value of green vegetables."

The liberal use of green vegetables insures a considerable contribution to the vitamin quota of the diet.[3] Spinach, for example, has the highest content of vitamin A of any common vegetable that has been investigated, being weight for weight, when fresh, a little richer than butter. Weight for weight, too, it is about as rich as milk in vitamin B, and it contains antiscorbutic vitamin also. Furthermore, not only do the leafy vegetables tend through their bulk to prevent constipation, but they also furnish the relatively uncommon but highly essential element calcium. There has been some question whether the calcium in spinach is actually readily available for absorption in man. In the Nutrition Laboratory of the Bureau of Home Economics of the United States Department of Agriculture in Washington, McLaughlin [4] has compared the calcium balance of a diet in which spinach supplied a very high proportion of the calcium with that of the same diet in which milk furnished an equal proportion of the element. The outcome gave a favorable report for the spinach, even when this furnished 70 per cent of the lime in the diet. This speaks well for the green vegetable that dietitians are wont to conjure with when nutrition needs a boost. It is nutritively wholesome, even if not always gustatorily delectable.

SVANTE ARRHENIUS

The death of Svante August Arrhenius, director of the Nobel Institute, at his home in Stockholm, Sweden, October 2, marks the end of a career in the study of the physical sciences that has made a deep impression on various aspects of medicine as well as on the disciplines that underlie it. Arrhenius continued the succession of brilliant names that his fatherland has supplied to science; he ranks along with Scheele, Linnaeus and Berzelius. The contribution that served to place Arrhenius in the forefront of academic distinction was his theory of electrolytic dissociation. Through application of the generalization expressed in Avogadro's hypothesis as it refers to gases, van't Hoff had reached the important conclusion that the osmotic pressure exerted by any substance in solution is the same as it would exert if it were a gas in the same volume as that occupied by the solution. Investigators soon found exceptions to this rule. Whereas it applied to the osmotic pressures exerted by substances like sugar and urea so that equimolecular solutions exhibited equal effects, the results obtained with comparable quantities of the salts of strong acids and bases—

1. McCollum, E. V., and Simmonds, Nina: The Newer Knowledge of Nutrition, New York, Macmillan Company, 1925.

2. Experiment Succeeds in Child Health Work, New York Times, Sept. 24, 1927.

3. A recent discussion of this feature is given by Rose, Mary S.: The Foundations of Nutrition, New York, Macmillan Company, 1927.

4. McLaughlin, Laura: Utilization of the Calcium of Spinach, J. Biol. Chem. 74: 455 (Sept.) 1927.

chlorides, sulphates and the like—were greater than would be expected from adopted formulas.

Finally, sufficient measured exceptions were gathered to enable Arrhenius, in 1887, to utilize the figures, together with the results of conductivity and other measurements, in the formulation of his theory of electrolytic dissociation. According to this, the molecules of certain substances when brought into solution dissociate into electrically charged particles or ions. A recent writer [1] has expressed the consequences as follows:

> It will be recalled that, many years before, Faraday classified substances as electrolytes and nonelectrolytes; the former, he believed, were broken up by the passage of the electric current. What really happens, however, is that the molecules dissociate and the ions carry the electric charge. The osmotic effect of a salt that dissociates almost completely is nearly twice as great as that produced by an equimolecular quantity of a nonelectrolyte like urea or cane sugar. This is so because each molecule of NaCl, for example, may yield two particles or ions.

The term "ion" has become a familiar expression in modern chemical and physical discussions. The name of Arrhenius will forever be associated with it.

The interests and enthusiasms of this pioneer Swedish physicist and chemist were manifold. They extended to the heavens as well as over the earth; they included the relation of material culture to world affairs and cosmogony, as well as intricately detailed chemical studies. Physicians and biologists will recall his "Immunochemistry," published twenty years ago. Revolting against some of the explanations advanced by the Ehrlich school for many of the phenomena of immune serums—the interplay of toxins and antitoxins—Arrhenius ventured to bring even such crudely measurable manifestations within the domain of known chemical laws. He thought of the toxin-antitoxin reaction as something comparable to that between weak acids and bases and endeavored to give it a physicochemical interpretation in place of the almost mystical analysis then applied to the so-called immune substances.

It was the revolt of the person accustomed to mathematically precise formulations against the elusive indefiniteness of the biologist accustomed to discuss phenomena in a qualitative way. Sir William Bayliss has credited Arrhenius with having pointed out that the expression of experimental results in a formula shows their relation to known laws in a way that is otherwise difficult or impossible to attain. One is enabled to see whether all the factors have been taken into account, and even an empiric formula may assist in deciding whether irregularities are due merely to experimental error or to some unsuspected real phenomenon in the process.

An illustration of Arrhenius' "universal" interests is afforded by his study of the influence of cosmic phenomena on the organism; in this he compared the curves of nativity, mortality, menstruation and epileptic attacks with the periodic maxima and minima of the electrical conditions of the air.[2] A volume on chemistry in modern life [3] published in translation in this country two years ago exemplifies the boldness with which Arrhenius, at the age of 63, attacked the problem of conservation of available sources of energy. In the preface he remarked:

> If we do not find some new source of energy within a thousand years, humanity will fall back to a state of civilization similar to that about a century ago, while the number of inhabitants of our planet will have to diminish to a corresponding degree. . . . Humanity stands, therefore, before a great problem of finding new raw materials and new sources of energy that shall never become exhausted. In the meantime we must not waste what we have, but must leave as much as possible for coming generations. Doubtless humanity will succeed eventually in solving this problem, at least partially. But when the new resources have been found the hearth of civilization will move to the places of their chief occurrence, and the life conditions of mankind may undergo a great revolution.

Arrhenius was one of the early Nobel laureates, having received an award in 1903, in recognition of his work on electrolytic dissociation. He had been a visitor to this country, and served as Silliman lecturer at Yale University. He had also acted as president of the Sverige Amerika Stiftelsen—the Swedish American Foundation.

1. Bodansky, M.: Introduction to Physiological Chemistry, New York, John Wiley & Sons, 1927.

2. Arrhenius, S. A.: Skand. Arch. Physiol. **1**: 367, 1898.

3. Arrhenius, S. A.: Chemistry in Modern Life, translated by C. S. Leonard, New York, D. Van Nostrand Company, 1925.

4. The Treatment of General Paralysis by Fever-Producing Methods, editorial, J. A. M. A. **87**: 1394 (Oct. 23) 1926.

5. Driver, J. R.; Gammel, J. A., and Karnosh, L. J.: Malaria Treatment of Central Nervous System Syphilis, J. A. M. A. **87**: 1821 (Nov. 27) 1926.

FEVER-PRODUCING METHODS IN TREATMENT OF GENERAL PARALYSIS

Last October THE JOURNAL reviewed the status of fever-producing methods for the treatment of general paralysis.[4] Since then much additional research has been reported, new facts have been discovered, and the actual status of various methods has been more firmly established. Driver, Gammel and Karnosh [5] compiled a summary of the results in the 2,336 cases of general paralysis treated with malaria which had been recorded in the literature to April 1, 1926. The condition of 27.5 per cent of these patients was greatly improved; of 26.5 per cent, moderately improved, and of 46 per cent, unimproved or worse, or the patients were dead. The same authors applied malaria therapy to seventy-nine of their patients with syphilis of the central nervous system, most of whom, both before and after the malarial treatment, received other antisyphilitic therapy. In sixty-five of these patients it was possible to evaluate the effect of the induced malaria. The series included thirty-one persons with general paralysis; two, with juvenile paresis; thirteen, with taboparalysis; twelve, with tabes dorsalis, and seven with cerebrospinal syphilis. The investigators checked results after the treatment had been completed

for from one to nine months. Of the patients with general paralysis, 26 per cent obtained complete remissions and were able to return to work, another 25 per cent were definitely improved, 13 per cent were slightly improved, and the remainder either were uninfluenced or had died. These figures are similar to those of the series which the authors collected from the literature. They obtained good results also in the cases of taboparalysis and tabes dorsalis. Only in the juvenile paresis group was the outcome discouraging.

In an outstanding investigation, Freeman [6] studied the microscopic changes in the brain following treatment by malaria. The inflammatory exudate in the meninges and about the blood vessels undergoes organization. In the course of the next several months the exudates are resorbed and regression of glia and vascular tissue takes place. Finally there is reconstruction of the architecture of the cortex. Here is morphologic foundation for the improvement observed clinically. Reasoning from these observations, Freeman concludes that in some cases in the future the term "recovery" rather than "remission" will be justified.

O'Leary,[7] in a report based on one hundred patients who were inoculated with *Plasmodium vivax* between June, 1924, and February, 1926, asserted that 49 per cent of those with general paralysis were still in remission at the time of the report. He stated that the fever treatment of Wagner von Jauregg "is the most valuable method of treatment suggested for paretic parenchymatous neurosyphilis, notwithstanding the fact that it is attended with definite risk." This author recommends, as does Moore,[8] the use of adjunct antisyphilitic treatment.

Certain side issues in the investigation of the malarial treatment have claimed attention. St. John [9] found that gametocytes might appear early in patients artificially inoculated with malaria, and concluded that they should be mosquito protected from the time they are inoculated to the end of the infection. Bunker [10] showed a relationship between gain in weight and temporary or permanent mental improvement in patients subjected to the malaria treatment. Ferraro and Fong [11] made the observation that the variety of general paralysis that is most likely to be affected favorably by the malaria treatment is the manic type. Next in sequence are the depressed, the expansive-paranoid, the dementing, the juvenile and the schizoid types.

Relatively little has been reported in the past year concerning relapsing fever or sodoku as a therapeutic measure in neurosyphilis. It seems likely that, if infectious disease methods are to persist, a contest might arise between malaria and sodoku. The organism of malaria is fairly easily procured and the induced disease easily controlled by quinine. However, once procured, *Spirochaeta morsus-muris*, the cause of sodoku,[12] can be "stored" for use in laboratory animals, the induced disease is easily controlled by arsphenamine, and the effect on the patient is less debilitating than malaria.

Possibly, however, the inoculation with an infectious disease will not continue to be necessary in the production of therapeutic fever. Admittedly, such methods possess many disadvantages. A year ago, Kunde, Hall and Gerty [13] published a preliminary report on a method of inducing fever for treatment in general paralysis by the use of injections of foreign protein. The advantages of the method offered at that time were that the chills could be induced at will, the height of the temperature could be controlled, approximately, by regulating the dosage, the leukocytosis which was induced might be advantageous, it was not necessary to inoculate the patients with a disease-producing organism, and if the cases were properly selected there should be no mortality. In this issue [14] appears a further report by the same authors which shows that, of forty-nine unselected patients with general paralysis, twenty-one have been restored to their former social positions. Only a year has elapsed since the preliminary report, and less than a year probably since the beginning of the treatment of most of the cases. Conclusions are not therefore yet warranted, but the results are prevailingly favorable.

6. Freeman, Walter: Malaria Treatment of General Paralysis: Histopathologic Observations in Fifteen Cases, J. A. M. A. **88**: 1064 (April 2) 1927.
7. O'Leary, P. A.: Treatment of Neurosyphilis by Malaria: Report on the Three Years' Observation of the First One Hundred Patients Treated, J. A. M. A. **89**: 95 (July 9) 1927.
8. Moore, J. E.: The Treatment of Central Nervous System Syphilis, J. A. M. A. **89**: 588 (Aug. 20) 1927.
9. St. John, J. H.: The Early Appearance of Gametocytes in Artificially Induced Tertian Malaria, J. A. M. A. **88**: 1561 (May 14) 1927.
10. Bunker, H. A.: Significance of Gain in Weight in Malaria Treatment of General Paralysis, Arch. Neurol. & Psychiat. **16**: 329 (Sept.) 1926; abstr. J. A. M. A. **87**: 1588 (Nov. 6) 1926.
11. Ferraro, A., and Fong, T. C. C.: Malaria Treatment of General Paralysis, J. Nervous & Ment. Dis. **65**: 225 (March) 1927; abstr. J. A. M. A. **88**: 1847 (June 4) 1927.
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13. Kunde, M. M.; Hall, G. W., and Gerty, F. J.: Nonspecific Protein Therapy in General Paralysis: Preliminary Report, J. A. M. A. **87**: 1376 (Oct. 23) 1926.
14. Kunde, M. M.; Hall, G. W., and Gerty, F. J.: General Paralysis; The Effect of Nonspecific Protein Therapy on the Blood and Spinal Fluid, this issue, p. 1304.

Current Comment

A HORMONE FOR EXTERNAL PANCREATIC SECRETION

At present it is generally admitted that the pancreatic secretion is under both nervous and chemical control or regulation. The involvement of the nervous system in the function of various secretory organs has long been recognized; the nervous influence may be exerted either directly on the secretory cells or on the circulation supplying them, and accordingly may alter the possibilities of their functional performance. The more recently established chemical regulation involves the effect of excitatory substances carried directly to the glands by the blood stream, so that they bring about their influence even when the nervous connections are entirely severed or otherwise excluded. This is the characteristic of a humoral in contrast to a nervous mechanism. Such chemical modification of physiologic

activities is representative of what has in recent years been designated as hormone action. If a hormone is defined as a substance formed in one organ and carried to another organ where it sets up definite physiologic activity, one might question whether the pancreatic secretion is, properly speaking, responsive to true hormone control. It is well established that ingestion of certain types of food promotes pancreatic secretion even in the absence of all nervous connections with the pancreatic structures. Such an effect may, however, be due to the presence of secretagogues, food constituents that lead to glandular stimulation after they are absorbed. Thus, the extractives of meat tend to promote the secretion of gastric juice. Recent studies by Ivy, Farrell and Lueth[1] at the Northwestern University Medical School in Chicago definitely place the pancreas in the group of organs stimulated to secretion by true hormone action. They showed that acid of gastric strength applied to transplanted loops of intestine excites secretion in isolated pancreatic transplants. This furnishes crucial evidence of the actual existence of a so-called secretin stimulation, the intestinal mucosa elaborating a hormone for external pancreatic secretion. In other words, application of acid as it happens in the normal course of alimentation causes the mucosa to add something to the blood — a hormone that excites the pancreas to action. The demonstration of this fact does not, however, exclude other possibilities of promoting pancreatic secretory function.

HYPERTHYROIDISM

Hyperthyroidism is a condition that has heretofore been more familiar from the clinical standpoint than as the result of experiments directed specifically to its production under the controlled conditions of the laboratory. It is not intended by this to imply that accurate, scientific data on the subject are lacking; indeed, there is a wealth of observations on patients under the most diverse conditions of thyroid function. Obviously these must be studied as they occur, whereas the animal experiment is amenable to direction and modification in accord with the questions at issue. An elaborate study conducted on animals at the University of Chicago by Kunde[2] has served to demonstrate anew some of the striking features of thyroid function as well as to revise views held with respect to explanations that have been ventured. For instance, the latent period or delay in the induction of heightened metabolism when the thyroid hormone is administered is confirmed. The maximal increase in heat production resulting from experimental hyperthyroidism in dogs may far exceed 100 per cent. The large increments are always attended by fever. Tachycardia and a disturbance in the conductive mechanism of the heart may both occur. The demonstration of diarrhea, tenesmus and bloody stools may help to explain clinical manifestations of alimentary upset after overdosage with thyroid. In view of the circumstance that thyroid is frequently administered with the object of reducing weight, it is interesting to learn that the influence of experimental hyperthyroidism on the body weight depends entirely on an undetermined nutritional state. Some animals display a peculiar ability to retain a constant body weight during several weeks of advanced hyperthyroidism on a previously determined maintenance diet. Others may lose 35 per cent of their initial body weight. A number of American clinicians have adopted the hypothesis that some of the symptoms of hyperthyroidism are to be explained on the basis of perverted rather than merely augmented secretion of the thyroid gland. The Chicago studies fail to support this theory, since all the cardinal symptoms of a disturbance in the functional activity of the thyroid gland, excepting cretinism and myxedema, can be produced in either the dog or the rabbit under certain conditions, by the administration of thyroid substances obtained from the glands of normal animals. For the present we must therefore be content to ascribe the principal manifestations of hyperthyroidism to oversecretion rather than to any perversion of the product formed by the malfunctioning glands.

1. Ivy, A. C.; Farrell, J. I., and Lueth, H. C.: Contributions to the Physiology of the Pancreas: III. A Hormone for External Pancreatic Secretion, Am. J. Physiol. **82**: 27 (Sept.) 1927. Ivy, A. C.: External Pancreatic Secretion, J. A. M. A. **89**: 1030 (Sept. 24) 1927.
2. Kunde, Margarete Meta: Studies on Metabolism: VI. Experimental Hyperthyroidism, Am. J. Physiol. **82**: 195 (Sept.) 1927.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Dr. Partlow Honored.—An act of the last legislature provides that the Alabama Home for Defectives shall be known as "The Partlow State School for Mental Defectives," in honor of Dr. William D. Partlow, largely through whose efforts the home near Tuscaloosa was established. There are about 290 inmates who are taught trades and schooled as far as their mental faculties permit. The legislature also appropriated $100,000 for additional buildings in 1928. Dr. Partlow is superintendent of the institution, head of Bryce Hospital, and is an ex-president of the Medical Association of the State of Alabama.

ARIZONA

Dr. Webster Appointed Dean of Women—Change of Name.—Dr. Clara P. Seippel Webster, formerly of Chicago, has been appointed dean of women at the University of Arizona, Tucson. By virtue of a decree of the superior court of Pima County, her surname was changed from Widdowson, as was that of Robert A. Webster.

ILLINOIS

Infantile Paralysis Quarantine.—Following the death from infantile paralysis of a pupil of the Dewey School, Evanston, the health commissioner, Dr. John W. H. Pollard, examined and quarantined about 100 children of the school and other members of their families in their homes for a period of two weeks.

Society News.—The Illinois Trudeau Society will meet, November 10, at Jacksonville, in conjunction with the Morgan County Medical Society; following a luncheon, a clinical program will be presented by Drs. Carl A. Hedblom and Edward A. Oliver, Chicago; George Gellhorn, St. Louis, and Hermon H. Cole, Springfield. At the dinner, the speaker will be Dr. William A. Evans, Chicago. Dr. Cecil M. Jack, Decatur, is president of the society.——The Illinois Conference on Public Welfare and Study Courses will be held at Joliet, October 17-21. Among the speakers will be C. C. Carstens, New York, executive director, Child Welfare League of America; Dr. Alex S. Hershfield, Chicago, state alienist, and

Dr. Daniel D. Coffey of the Chicago State Hospital; among other kindred groups meeting at this time will be the American Association of Hospital Social Workers. The headquarters office will be at the Chamber of Commerce Building.——About 125 physicians attended a dinner and meeting of the Winnebago County Medical Society, Rockford, October 4. The addresses were given by Drs. William F. Braasch, Mayo Clinic, Rochester, Minn., on "Diagnosis and Treatment of Kidney Stone," and Dr. Charles S. McVicar, Mayo Clinic, Rochester, Minn., on "Clinical Application of Recent Studies of the Liver"; Drs. Thomas H. Culhane, Arthur J. Connell and John R. Porter, all of Rockford, presented a case of congenital hemolytic jaundice.

Chicago

Northwestern's Freshman Class.—More than 1,000 applications were received for admission to the freshman class at the Northwestern University Medical School this fall, it is reported. One hundred and twenty-two were accepted, and of these only five had just the minimum two years of college preparation. Fifty-five are said to have had a college degree and one a Ph.D.

Hospital News.—A drive will be conducted, October 16-23, to complete the building fund for the Chicago Lying-In Hospital. The amount needed to reach the goal is $400,000. The hospital recently affiliated with the University of Chicago, and is to abandon its present location on Fifty-First Street and erect new buildings on the Midway. Mrs. Kellogg Fairbank is general chairman of the drive committee.

Personal.—Dr. Casey Wood has been elected an honorary member of the Charaka Club, New York, in recognition of his contributions to the history of medicine.——W. T. Bovie, Ph.D., has arrived in Chicago to take up his duties as professor of biophysics at Northwestern University Medical School. Dr. Bovie is a member of the Council on Physical Therapy of the American Medical Association and heretofore was associate professor of biophysics at Harvard University Medical School, Boston.——Dr. Irving Cutter, dean and associate professor of medicine, Northwestern University Medical School, was elected president of the Phi Rho Sigma Medical Fraternity at the fifteenth biennial convention in Montreal September 14-17.——Dr. Carl Beck has been made a member of the Royal Society of Medicine of Italy.

INDIANA

State Medical Election.—At the annual meeting of the Indiana State Medical Association, Indianapolis, September 30, Dr. George R. Daniels, Jr., Marion, was installed as president, and Dr. Charles E. Gillespie, Seymour, was made president elect; Dr. William A. Doeppers, Indianapolis, treasurer, reelected; Mr. Thomas A. Hendricks, executive secretary, reelected. Drs. Albert E. Bulson, Jr., Fort Wayne, editor of the state journal, and Eldridge M. Shanklin, Hammond, were elected delegates to the American Medical Association.

Personal.—Dr. George T. MacCoy, Columbus, has given his medical library to the Bartholomew County Hospital; Dr. MacCoy, who has been in the practice of medicine for about fifty-five years, is a past president of the state medical association.——Dr. T. Henry Davis, Richmond, celebrated his ninety-first birthday, September 29. Dr. Davis was health officer of Richmond and a member of the state board of health for many years.——Dr. H. Mertz has been elected president of the Staff Society of the Methodist Hospital at Indianapolis, and Dr. Marie B. Kast, secretary.

MICHIGAN

Personal.—Dr. Charles H. P. G. Benning, Pontiac, has been appointed in charge of the Royal Oak Township Health Department on a full-time basis.——James Perry Briggs, for many years pharmacist at the University of Michigan Hospital, Ann Arbor, died, September 25.

Dr. Randall Honored.—About 200 physicians and laymen attended a banquet, September 7, in honor of the president of the state medical society, Dr. Herbert E. Randall, Flint; Dr. Colonel B. Burr, Flint, was the toastmaster. Among the speakers were Dr. Louis J. Hirschman, Detroit. Dr. William J. Kay, Lapeer, for six years an associate of Dr. Randall, responded to the toast "The Country Doctor"; Dr. Angus McLean, Detroit, spoke on "The Surgeon," and Dr. Burton R. Corbus, Grand Rapids, spoke of Dr. Randall's work on the council of the state medical society. Col. James Parker, judge of the circuit court, responded to the toast "The Soldier"; Dr. Joshua G. R. Manwaring, Flint, "The Colleague," and Dr. James H. Dempster, Detroit, "The Ladies." Other speakers included Dr. Guy L. Kiefer, Lansing, and Congressman Crampton of Lapeer.

University Establishes Department of Graduate Medicine.—The board of regents of the University of Michigan has authorized the establishment at the university of a department of graduate medicine, and has asked Dr. James D. Bruce to undertake its organization. This step is in response to recommendations from the state medical society and other organizations having to do with the care of the sick. The success of the district clinical conferences conducted by the state medical society had shown a demand for graduate courses. The president and chairman of the council of the state society in 1925 invited representatives of the Detroit College of Medicine and Surgery, the university medical school, the state board of registration, the state board of health and the division of public health and hygiene to meet with the council to consider establishing a graduate medical school. There was a full discussion at this meeting and a committee of three was appointed to study the question. The committee's report confirmed the opinion of the council as to the demand for graduate work, and recommended that a department of graduate medicine be established in the university. This committee comprised Dr. William M. Donald, representing the Detroit College of Medicine and Surgery; Dr. Carl D. Camp, representing the University of Michigan Medical School, and Dr. James D. Bruce, Ann Arbor, representing the state medical society.

MINNESOTA

Society News.—Among others, Prof. J. Arthur Harris, Ph.D., department of botany, University of Minnesota, addressed the Hennepin County Medical Society, Minneapolis, October 3, on "Mathematics in the Service of Medicine," and Dr. Walter Fink on "Value of Foreign Protein Therapy in Ocular Infection."——Dr. Frank E. Burch, St. Paul, delivered the presidential address before the Minnesota Academy of Medicine at the Town and Country Club, Minneapolis, October 12, on "Early Cataract Surgery."

Personal.—Dr. Everett C. Hartley, Jr., St. Paul, has been appointed director of the division of child hygiene of the state board of health.——Dr. John E. Hynes, Minneapolis, was elected president of the Minnesota Academy of Medicine in September.——On account of a decrease in the appropriation for the state board of health, the staff of the laboratory division has been reduced. The board hopes that every physician failing to receive laboratory reports promptly will understand that the delay is unavoidable. The board was obliged to discontinue the services of David Stern, who had charge of the laboratory and field epidemiologic work. Dr. Harry G. Irvine, who has been part-time director of the venereal disease division since its establishment by the board, will continue nominally as director without salary.——Dr. Gerald O. Grain has been granted leave of absence from the Mayo Foundation, Rochester, and will be at the Henry Ford Hospital, Detroit, after October 1.

NEBRASKA

Medical Exhibit at State Fair.—At the last annual meeting of the Nebraska State Medical Society, the house of delegates approved an appropriation of $500 for a health exhibit at the state fair, and appointed a committee of supervision. The exhibit, which was a success and probably will be repeated next year on a larger scale, comprised pathologic specimens from the University of Nebraska College of Medicine and from Creighton University School of Medicine, the paleopathologic collection of Dr. Frank B. Young of Gering, placards from the state health departments and medical schools, and a collection of biologic products. Lectures were given almost continuously on tuberculosis, typhoid, diphtheria, scarlet fever, rickets, focal infection, sunshine, vaccination and immunization. Two nurses from the Nurses' Club, Lincoln, were on duty. It is estimated that about 5,000 people attended the exhibit.

NEW JERSEY

Dr. Gilady Remains at Hackensack Hospital.—The report in THE JOURNAL, October 1, of the resignation of Dr. Raphael Gilady as pathologist to the Hackensack Hospital was erroneous. Dr. Gilady is the director of the pathologic laboratory, and has no intention of resigning. He has, however, it is

reported, resigned from the laboratory work which he was doing for the Hackensack Board of Health.

Unlicensed Practitioners Arrested.—The New Jersey Board of Medical Examiners reports the prosecution recently of the following persons for practicing medicine without a license:

Joshua A. Brooksie, Trenton, chiropractor, paid a penalty.
William P. Bohne, West New York, druggist, paid a penalty.
Joseph Tulligowitz, Newark, naturopath, paid a penalty.
Dominick Rubino, Bloomfield, druggist, paid a penalty.
Douglas C. Ramsey, New Providence, unlicensed physician, paid a penalty.
Harry La Bar, Jersey City, druggist, paid the penalty.
Panayiotis Panoulias, Jersey City, paid the penalty.
Evelyn Wienckiewicz, Irvington, naturopath, paid the penalty.
Frank Hirsch, Elizabeth, chiropractor, case pending.
Freda Korte, Atlantic City, naturopath, paid the penalty.
Harold Bardsley, Egg Harbor, chiropractor, paid the penalty.
T. Harry Cronk, unlicensed physician, paid the penalty.
Emma Gebret, Camden, licensed midwife, paid the penalty.
Moritz H. Fleischman, Newark, paid the penalty.
Borman F. Jones, Newark, refused to pay penalty, committed to jail.
Alfonso De Murcio, Bayonne, druggist, paid the penalty.
John Heil, Irvington, naturopath, paid the penalty.
Leon J. Nightingale, Bloomfield, chiropractor.
John P. Fisher, Clifton, "rheumatism specialist," paid the penalty.
Paul B. Haebler, Union City, naturopath, paid the penalty.
Gustav Uez, Union City, naturopath, paid the penalty.
Luke Henderson, Asbury Park, paid the penalty.
Harry Galosh, Singnac, druggist, paid the penalty.
Joseph Ilaria, Singnac, druggist, paid the penalty.

NEW MEXICO

Physical Therapist Arrives to Help Paralysis Victims.—The bureau of public health of New Mexico announces that an expert physical therapist from New York began working, September 27, in Union County to assist in the treatment of victims of infantile paralysis. She will stop in Las Vegas and Raton before returning to Santa Fe, and while in a community her services will be available for other cases of paralysis or deformity, provided they do not require time which would be given to victims of infantile paralysis. She will instruct local nurses in methods used, so that they may follow up the treatment under the supervision of the family physician. Eighteen cases of infantile paralysis from various parts of the state were reported for the week ending September 24.

NEW YORK

New York's Memorial Hospital.—Four years after the construction of the $3,000,000 Veterans' Memorial Hospital at Kings Park, L. I., was started, it was completed. There are seventeen new buildings providing for 310 additional patients, and for the staff and employees. Governor Smith was prevented by illness from delivering the address at the dedication, September 24; his substitute for the occasion was Gen. William N. Haskell, commander of the New York National Guard; other speakers included the president of the State Charities' Aid Association, George F. Canfield, and Almon G. Rasquin of the state department of mental hygiene. The Veterans' Memorial Hospital is near the Kings Park State Hospital, and overlooks Long Island Sound. There are separate buildings for acute medical and surgical cases, convalescent cases, contagious diseases, continued treatment cases, a complete operating unit, provision for employees who become ill and a clinic with facilities for the diagnosis and treatment of mental and physical conditions.

The Medical and Surgical Building.

New York City

Thirty Days for Chiropractor.—The New York *Times* notes that a chiropractor by the name of De Forrest Smith was sentenced, September 20, to thirty days in the workhouse for practicing without a license. Smith pleaded guilty; his case is said to be one of the first convictions under the new medical practice act.

Course in Accident Prevention.—New York University opened a course in the prevention of accidents, October 3, with the cooperation of the American Museum of Safety. The course has become a permanent part of the curriculum. A distinguished group of men who have had experience in accident prevention work will be the instructors. The study will include industrial safety, public safety, motor vehicles, safety campaigns and other phases of accident prevention.

Personal.—The Association of Italian Physicians held a memorial service, October 10, at the New York Academy of Medicine, Fifth Avenue and One Hundred and Third Street for their late president, Dr. Antonio Stella.——Dr. Thomas Scherrer, chief of the department of health of Austria, sailed for France, October 8, after studying public health work in this country for two months. Dr. Scherrer, who was the guest of the Commonwealth Fund, visited public health centers from coast to coast.——Eben Charles Sage, Ph.D., for many years connected with the General Education Board, died suddenly, October 4, at a subway station.

Stolen Prescriptions—Seventeen Druggists Indicted.—After a six months' investigation of physicians' complaints in New York, Pennsylvania and Virginia that their liquor prescription books were being stolen, the grand jury indicted seventeen druggists and others, October 4, on charges of violating the national prohibition act through a conspiracy to purchase and sell stolen liquor prescription blanks to cover illicit sales and the diversion of whisky. Frequently, it is said, a druggist would receive a large number of prescriptions to cover liquor withdrawn which he would never see, the whisky going into illegal channels before reaching the drug store. The investigators said that in almost every case in which prescription books were stolen, it was done during the morning hours when physicians were making calls, and usually under a pretense of using the telephone or writing a note to leave on the physician's desk. The New York *Times* states that the following druggists are among the defendants:

Frank Cohn, 925 Union Avenue, the Bronx.
William L. Jacobson, 1362 Clifton Avenue, the Bronx.
Abraham Margules, 5816 Broadway.
Morris Friedberg, 268 East One Hundred and Seventy-Fourth Street, the Bronx.
Aaron Medoff, whose address appears on the grand jury's list as 898 One Hundred and Eightieth Street.
Gregory Sheaber, 1584 University Avenue, the Bronx.
Benzion Vogel, 256 Rogers Avenue, Brooklyn.
Frank Lubansky, 1550 Madison Avenue.
Erwin Tobach, 1160 Bryant Avenue, the Bronx.
Erwin Kandell, Cypress Avenue and East One Hundred and Fortieth Street, the Bronx.
Rosa Jondeph, 1344 Park Avenue.
Leopold Sisseleman, 1344 Park Avenue.
Ephriam Levy, 1861 Lexington Avenue.
Abraham Samuels, 1931 University Avenue, the Bronx.
Albert Fainland, 2543 Eighth Avenue.
Philip Tishber.
Morris Raskin, 69 East One Hundred and Sixteenth Street.

Society News.—The Harlem Committee of the New York Tuberculosis and Health Association celebrated the completion of its fifth year of work, September 22; citizens were invited to headquarters, 202 West One Hundred and Thirty-Sixth Street, where exhibits showing the growth of the work were displayed; the staff of the committee includes four full-time workers, twelve dentists and several physicians, who give some of their time to the health examination clinic.——Twenty-five Japanese physicians are now touring the United States, inspecting hospitals and medical schools. October 3 they visited hospitals in New York.——Dr. Clarence J. Gamble, Philadelphia, addressed the Medical Society of the County of Kings, September 27, on "The Stethoscope in the Diagnosis of Heart Disease"; a moving picture, said to have been prepared by the American Heart Association, entitled "The Valves of the Heart in Action," was shown at this meeting; there was also a demonstration of the heart sounds through the public address system of the Bell Telephone Laboratories.——The American Stomatological Association will meet, October 19, at the Columbia University Club, 4 West Forty-Third Street, at 8:15 p. m. Dr. George M. MacKee, New York, will give an address on "Syphilis of the Mouth," illustrated with lantern slides, which will be discussed by Drs. Fred Wise, Howard Fox and Malford W. Thewlis. Physicians and dentists desiring to attend the dinner preceding the meeting should send their names to Dr. Robert H. Rose, 30 East Fortieth Street; tickets, $5.——A committee has been formed to prepare a memorial to the late Dr. Thomas W. Salmon; the chairman is Dr. Frankwood E. Williams, medical director, National Committee for Mental Hygiene, 370 Seventh Avenue, and the treasurer. Dr. Samuel W. Hamilton, Bloomingdale Hospital, White Plains.——The New England and Philadelphia pediatric societies will hold a joint meeting with the section on pediatrics of the New York Academy of Medicine at the New York Academy of Medicine, October 29.——Dr. James J. Walsh addressed the Society of Medical Jurisprudence, October 10, on "What the Mind Does to the Body."——Ground

will be broken, October 19, for the new building of the Neurological Institute of New York at the medical center, One Hundred and Sixty-Eighth Street, west of Broadway.

OHIO

Attorneys' and Physicians' Golf Contest.—In an eighteen hole match at the Sylvania Golf Club, Toledo, September 8, the team of the Toledo Academy of Medicine defeated the team of the Toledo Bar Association by a score of 57 to 39. The academy team has also defeated this season the Toledo dentists and the Cleveland and Jackson medical teams; in fact, it is said not to have been defeated this season.

Toledo's Medical Endowment Fund.—The goal of the Toledo Academy of Medicine in its campaign for endowment is $100,000 by January 1. The idea of an endowment fund has grown so that it has been renamed the Academy of Medicine Foundation for the Furtherance of Research in Medicine and Surgery. The form of bequest is not limited, although the insurance plan, bequest by will and subscriptions of cash are the methods of choice. Already one cash pledge of $1,000 from Dr. Elijah W. Doherty has been received.

Society News.—Dr. Dyle J. Slosser, Defiance, was elected president of the Northwestern Ohio Medical Association at its annual meeting in that city, September 13, and Dr. Arthur J. Willey, Marion, secretary.—Dr. Charles W. Burhans, Cleveland, addressed the Turnbull County Medical Society, Warren, September 15, on "Diagnosis and Treatment of Infantile Paralysis."—Dr. Hubert C. King, Cleveland, addressed the Lorain County Medical Society, Elyria, September 14, on "Subacute Bacterial Endocarditis."—Dr. Gustav Alexander, professor of diseases of the ear, Vienna, Austria, addressed the Toledo Academy of Medicine, October 7, on "Pathology, Clinical Finding and Treatment of Acute Mastoiditis." The pathology section of the academy held a joint meeting, October 14, with the Toledo Dental Society. George W. Clapp, D.D.S., New York, discussed "Fundamentals in the Correction of Physical Deficiencies," and Dr. Henry A. Cotton, Trenton, N. J., "Chronic Sepsis and Mental Disorders." The medical section of the academy will hold a symposium on poliomyelitis, October 21, and the general meeting, November 4, will be addressed by Drs. John Alexander and Frederick A. Coller, Ann Arbor, Mich., on "Bronchiectasis, Pulmonary Abscess and Tuberculosis" and "Empyema," respectively.—The elderly practicing physicians of Cuyahoga County were guests of Keith's Palace Theatre, recently, to see the showing of the film, "The Country Doctor."—The Ashtabula County Medical Society spent the afternoon and evening, August 24, at the Ashtabula Country Club; Dr. Charles C. Crosby took first place in a blind bogey golf tournament.—Dr. Ernest G. Kuhlman, Pittsburgh, addressed the Columbiana County Medical Society, September 9, on "Anterior Poliomyelitis."—The Eighth Councilor District Society met at Zanesville, September 28; among the speakers were the president of the state medical society, Dr. Leslie L. Bigelow, Columbus; Dr. Delivan A. MacGregor, Wheeling, W. Va., "Pernicious Anemia"; Dr. William D. Porter, Cincinnati, "Dystocia," and Dr. Chandler P. Robbins, Columbus, "Infantile Paralysis and Use of the Rosenow Serum."—Dr. John C. Oliver has been appointed chairman of a committee to look about for a suitable home for the Cincinnati Academy of Medicine.—The one hundred and twentieth semiannual meeting of the Union District Medical Association will be at Eaton, October 27, under the presidency of Dr. Gustav A. Herman, Hamilton; physicians are cordially invited to attend. Dr. David L. Smith, Indianapolis, will discuss "Toxemias of Pregnancy"; Dr. Frank E. Fee, Cincinnati, "Carcinoma of the Rectum," and Dr. C. A. Coleman, Dayton, "Surgery of the Prostate."—Dr. Elliott C. Cutler, professor of surgery, Western Reserve University School of Medicine, Cleveland, addressed the Summit County Medical Society, September 6, on "Postoperative Complications."

PENNSYLVANIA

Personal.—Dr. Harry W. Albertson, Scranton, has been appointed a member of the state board of medical education and licensure to succeed Dr. Adolph Koenig, Pittsburgh, whose term expired, September 1.—Dr. Frank E. Coughlin, formerly health director for Butler and Venango counties, has taken up work with the central office of the state health department as an epidemiologist.

Society News.—Dr. Louis H. Clerf of the bronchoscopic clinic, Jefferson Hospital, Philadelphia, gave an illustrated lecture on removal of foreign bodies from the lungs before the Bucks County Medical Society, Buckingham, September 21.—Drs. George R. Moffitt and Louis W. Wright, Harrisburg, gave an illustrated lecture on blood typing before the Dauphin County Medical Society, September 6; fourteen members had their blood typed during the session, and the results were thrown on the screen.—The meeting of the Harrisburg Academy of Medicine, September 20, was given over to a symposium on infantile paralysis; the speakers were Drs. Edgar S. Everhart, Henry R. Douglas and Carson Coover.—Dr. Henry H. M. Lyle, Cornell University Medical College, New York, addressed the Berks County Medical Society, October 11, on "Disabilities of the Shoulder."

Philadelphia

Personal.—Dr. Wilmer Krusen was elected president of the Philadelphia College of Pharmacy and Science, September 22, succeeding Rear Admiral William C. Braisted, who recently retired after having been president for six years.—Dr. Bernard Mann has been appointed assistant professor of gynecology in the Graduate School of Medicine of the University of Pennsylvania.

Society News.—Dr. William L. Aycock, associate in preventive medicine and hygiene, Harvard School of Public Health, Boston, addressed the section on medicine of the College of Physicians, September 26, on "The Problem of Poliomyelitis."—Dr. Ralph C. Matson, Portland, Ore., addressed the College of Physicians, October 5, on "Surgical Treatment of Pulmonary Tuberculosis."—Dr. Paul G. Shipley, Johns Hopkins University School of Medicine, Baltimore, will address the biochemical society, Jefferson Medical College, October 17, on "Calcium."

TENNESSEE

Walnut Log Medical Society Meeting.—The annual meeting of the Walnut Log Medical Society, composed of physicians from western Kentucky and western Tennessee, was held at Reelfoot Lake, September 7-8. There was a barbecue dinner, Wednesday, and other entertainment, a business session and several scientific addresses. Among the speakers were Drs. Flint Bondurant, Cairo, Ill., whose subject was "Diagnosis of the Severe Abdominal Crises"; W. Likely Simpson, Memphis, Tenn., "End-Results in Sinus Surgery"; Raphael E. Semmes, Jr., Memphis, Tenn., "Recent Advances in Surgery of the Nervous System"; John L. Jelks, Memphis, "Plea for More Intimate Knowledge of Procto-Enterological Diseases by the General Practitioner"; Jesse P. Baird, Dyersburg, Tenn., "Lung Abscess," and Henry G. Hill, Memphis, "Bone Tumors."

VIRGINIA

Personal.—Dr. William R. Whitman, Roanoke, has been appointed chief surgeon of the Norfolk and Western Railway to succeed the late Dr. Sparrell S. Gale, whose assistant he was for years.—Dr. George Colbert Tyler has been appointed health officer of the city of Newport News to succeed Dr. Donald St. C. Campbell, resigned.

Society News.—Dr. Edmund Horgan, Washington, D. C., reported a case of thrombo-angiitis obliterans at the meeting of the Arlington County Medical Society, August 11.—Dr. William T. Davis, Washington, D. C., addressed the staff of the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, September 19, on "Glaucoma," and Dr. Samuel Iglauer, Cincinnati, on "Iodized Oil in the Diagnosis of Bronchopulmonary Conditions."—About seventy physicians attended the semiannual meeting of the Southwest Virginia Medical Society, September 24, at Bristol. In addition to many papers read by Virginia members, Dr. J. Hunter Peak, Louisville, Ky., gave an address on "Cesarean Section," illustrated by motion pictures. Dr. James L. Early, Radford, was elected president of the society, and Dr. Elbyrne G. Gill, Roanoke, reelected secretary. The next meeting will be at Marion, in April.

State Medical Meeting at Petersburg.—The fifty-eighth annual meeting of the Medical Society of Virginia will be held at Petersburg, October 18-20, under the presidency of Dr. John Shelton Horsley, Richmond, and with headquarters at the Petersburg High School. There will be a golf tournament the first day, starting at 10 a. m. The Petersburg committee offers prizes for the two lowest medal scores, and the cup donated four years ago by the Roanoke Academy of Medicine is to be held permanently by the winner of the two tournaments. Tuesday evening, at the public meeting, Dr. Horsley will speak on "The Medical Profession of Vir-

ginia"; Dr. John M. T. Finney, Baltimore, on "Reflections on the Responsibilities of the Doctor"; Dr. Walter A. Plecker, Richmond, on "The Physician's Part in Popularizing Breast Feeding and Reducing Infant Mortality," and Dr. Ennion G. Williams, Richmond, "Policy of the State Board of Health on Tuberculosis." The public meeting, Wednesday evening, will be addressed by Dr. Wilburt C. Davison, Durham, on "Empyema in Infants Under Two Years of Age"; by Dr. Stewart R. Roberts, Atlanta, Ga., on "The Rheumatic Heart," and by Dr. Malcolm L. Harris, Chicago, Chairman, Judicial Council of the American Medical Association, on "Medical Economics." Following this meeting there will be a reception and dance at the Country Club. Among many other papers to be presented on the scientific program will be one on "Mental Diseases" by Dr. Bittle C. Keister, Washington, D. C. The affiliated societies which meet at the time of the state meeting are the Virginia Pediatric Society, the Virginia Roentgen Ray Club, the Virginia Hospital Association, the Medical Woman's Club of Virginia and the Medical College of Virginia Alumni.

Reed's Home Dedicated as National Shrine.—The Walter Reed Memorial Commission of the Medical Society of Virginia announces the opening of Belroi, the birthplace of Walter Reed in Gloucester County, October 15, and its dedication as a national shrine. The ceremonies will comprise patriotic exercises, in which the U. S. Army Band from Fort Eustace will participate, and devotional exercises, in which the Rev. James C. Reed of Blackstone, a brother of Dr. Walter Reed, and the Rev. O. J. Haga, South Belroi, will participate; other speakers include Dr. Edward C. S. Taliaferro, Norfolk; Dr. Clarence Porter Jones, Newport News; Mrs. William F. Taliaferro, president of the Gloucester County Woman's Club, Nuthall; Dr. Clements, Ordinary, and Dr. Lawrence T. Royster of the University of Virginia Department of Medicine, whose subject will be "What Walter Reed Means to Medical Research"; Col. Jefferson R. Kean, U. S. Army, retired, who will speak on "Walter Reed as a World Hero," will be introduced by Schuyler O. Bland, Newport News, of the Virginia House of Representatives. The Walter Reed Memorial Commission of the Medical Society of Virginia for the Encouragement of Research holds title to the property, and the Woman's Club of Gloucester County will have custody of the property. The commission comprises Dr. Taliaferro, chairman; Dr. Jones, secretary-treasurer; Drs. Greer Baughman, Richmond; Halstead S. Hedges, Charlottesville, and Garnett Nelson, Richmond. (THE JOURNAL, May 7, p. 1493.)

WASHINGTON

Public Health League Election.—At the seventh annual meeting of the Public Health League of Washington, Tacoma, August 30, Dr. George A. Downs, Spokane, was elected president; Dr. George A. Dowling, general vice president, Robert O. Jones, executive secretary, and Dr. Walter C. Woodward, secretary-treasurer, all of Seattle.

Society News.—Dr. Walter C. Woodward, Seattle, addressed the Seattle Obstetrical and Gynecological Society, September 20, on use of magnesium sulphate in the treatment of eclampsia and the toxemias of pregnancy.——Dr. Allison T. Wanamaker, Seattle, president of the King County Medical Society, gave a banquet at the University Club, September 17, to members of the various committees of the society. At the October 3 meeting of the society, Dr. Samuel Caldbick, Everett, discussed the successful removal of a cyst of the mediastinum, and Dr. Charles Homer Wheelon, "Blood Pressure Variations in Connection with Vasomotor Stimulation." ——Dr. Percy F. Guy addressed the Pierce County Medical Society, Tacoma, September 27, on "Pyloric Stenosis in Infants."

Hospital News.—St. Joseph's Hospital, Bellingham, dedicated, July 24, the Dr. H. A. Compton Pavilion, which is named in honor of a physician who devoted many years of service to the community. —— The first unit of the Pierce County Hospital, Tacoma, erected at a cost of $315,000, is nearing completion. It has a capacity of 160 beds, which ultimately will probably be increased to more than 400 beds. The building is to be fully equipped with the most modern hospital devices. There will be, for example, a system for carrying sterile, distilled water through pipes to all parts of the hospital so as to insure an adequate supply at all times; the morgue, while primarily for this hospital, will be used as a county morgue. The superintendent is Dr. Burton A. Brown.

Dr. Eagleson Honored.—The program of the King County Medical Society, Seattle, September 12, was the presentation and dedication of a bronze bust of Dr. James B. Eagleson, which was the gift of individual members and others. The address was given by Dr. Robert C. Coffey, Portland. Other speakers were Dr. Everett O. Jones, whose subject was "Dr. Eagleson as a Soldier"; Dr. E. Weldon Young gave the dedication address; Dr. Alexander H. Peacock, chairman of the committee to produce the bust, made the presentation speech, and Rev. Dr. Mark A. Matthews spoke on "Dr. Eagleson as a Church Member." The quartet of the medical society sang, and refreshments were served after the ceremony.

PHILIPPINE ISLANDS

Medical Societies Agree to Merge.—The Philippine Islands Medical Association and the Colegio Médico-Farmacéutico de Filipinas have both voted by a large majority to merge, and the project will probably culminate at the next annual meeting of the Philippine Islands Medical Association in December. The secretary of the Philippine Islands Medical Association is Dr. Antonio S. Fernando, Manila, and of the Colegio Médico-Farmacéutico de Filipinas, Dr. Carmelo Peñaflor.

GENERAL

The Infantile Paralysis Situation.—There appears to have been a slight decline in the number of cases of infantile paralysis for the week ending October 1, according to reports to the U. S. Public Health Service, the total number of cases reported having been 635, as compared with 641 for the week ending September 24. Increases are said to have been reported in California, Illinois, New Jersey, Oregon, West Virginia and New York, outside of New York City. The *Ohio Health News* reports that Ohio is experiencing the greatest outbreak of poliomyelitis in its history; that on October 1 the cases reported amounted to 750, with sixty-nine deaths. In September, in Ohio, the disease was reported from fifty-nine county districts and thirty-two city districts; of these counties twenty-seven did not report any case in August, whereas the cities reported six.

Additional Clinical Laboratories Approved.—Since the list of approved clinical laboratories was published in THE JOURNAL, March 12, the following clinical laboratories have been approved:

Bartlett C. Shackford, M.D., Clinical Laboratory, 1208 Security Building, Long Beach, Calif.
Middlesex Hospital Laboratory, Jessie W. Fisher, M.D., director, 28 Crescent Street, Middletown, Conn.
Diagnostic Laboratories, William W. Kirk, M.D., director, 216 Professional Building, Jacksonville, Fla.
Martin-McNeill Laboratories, Clyde McNeill, M.D., director, 901-904 Brown Building, Louisville, Ky.
Serological Laboratory of David J. Kaliski, M.D., 70 E. Eighty-Third Street, New York (work limited to serology).
The von Wedel Laboratories, H. von Wedel, Sc.D., director, Gregory F. Lukianoff, M.D., pathologist, 417 Hugenot Street, New Rochelle, N. Y.
The Clinic, Eric A. Fennel, M.D., director, 401 S. Beretania Street, Honolulu, T. H.

Seven American Soldiers Found in Shell Hole in France.—After nine years' search of the battlefields, the remains of an officer and six enlisted men, killed in the Meuse-Argonne offensive, have just been located in a shell-hole grave and identified. They are First Lieut. William A. Sheehan, Washington, D. C.; First Class Private Ellis Eskowitz, Baltimore; First Class Private Edward C. Moran, Philadelphia; Private Henry Faller, Pottsville, Pa.; Private August H. Rittmiller, Baltimore; Private Irving S. Roffis, New York, and Private Jesse E. Schaal, Philadelphia. They were killed, Sept. 29, 1918, at the edge of the Bois des Ogons near the Ferme de la Madeleine in the battle of Montfauçon. They belonged to the Seventy-Ninth Division. Officers of the Three Hundred and Fifteenth Infantry made three trips to this farm to locate their graves, and since the war, relatives of Lieutenant Sheehan have twice gone to France in search of his remains.

Prize for Best Monograph on "Scientific Property."—The Charles C. Linthicum Foundation offers a first prize of $1,000 and a bronze medal, and two second prizes of $100 each to

the authors of the best essays or monographs submitted by March 1, 1929, on the subject of "Scientific Property"; that is, the granting of a quasi-patent right to the discoverer of a principle of science, or the extension of the patent or copyright laws so as to recognize a right, in the discoverer of a scientific principle, to some share of the profits that may accrue to an inventor who makes use of that discovery to devise an "art, machine, manufacture, or composition of matter" and thus obtains a patent. The offer is open to members of the legal profession of any country. The Charles C. Linthicum Foundation is administered by the faculty of law of Northwestern University, 357 East Chicago Avenue, Chicago, which will make the award, and give further information on request.

Clinical Congress at El Paso.—The annual clinical congress and postgraduate assembly of the Medical and Surgical Association of the Southwest will be at El Paso, November 2-5, with headquarters at the Hotel Orndorff, and with the El Paso County Medical Society acting as hosts. The evening meetings will be open to the public. There will be a registration fee of $5 for members, and of $10 for nonmembers to defray expenses. Those who will hold clinics or give addresses include Drs. Francis M. Pottenger, Monrovia, Calif.; William H. Park, New York; Carl A. Hedblom, Chicago; Frank Hinman, San Francisco; William W. Duke, Kansas City, Mo.; Grant E. Ward, Baltimore; James T. Case, Battle Creek, Mich.; George A. Wyeth, New York; Frederick M. Allen, New York; Drew W. Luten, St. Louis; Walter B. Coffey, John D. Humber and Philip K. Brown, San Francisco; Harry S. Crossen, St. Louis; John McMullen, U. S. Public Health Service, and Leroy Sante, St. Louis.

Award of Fellowships in Medicine.—At the September meeting of the Medical Fellowship Board of the National Research Council, Washington, D. C., the following fellowships in medicine, with the place of study indicated, were awarded:

Name and Location	Subject
William C. Austin, Ph.D., U. S. Bureau of Standards	Physiologic and organic chemistry
Wilton R. Earle, equivalent of Ph.D., Vanderbilt University	Anatomy
Edgar F. Fincher, Jr., M.D., Washington University	Neurosurgery
Richard W. Whitehead, M.D., University of Chicago	Pharmacology

Oran I. Cutler, M.D., was reappointed a fellow in pathology at the University of Chicago. The Medical Fellowship Board meets twice a year. Applications for fellowships should be filed with the secretary of the board on or before March 1 and August 1. Dr. Noel F. Shambaugh, formerly a fellow of the council, has been appointed assistant professor of clinical investigation, department of internal medicine, University of Michigan, Ann Arbor, and Dr. Hobart A. Reimann, a recent fellow of the council, has been appointed assistant professor of medicine at Peking Union Medical College, Peking, China.

Hospitals Approved for Intern Training and Residencies in Specialties.—Since its last report on hospitals approved for internships (THE JOURNAL, July 16), the Council on Medical Education and Hospitals has approved the following additional hospitals:

Orange County Hospital, Orange, Calif.
Pasadena Hospital, Pasadena, Calif.
Stamford Hospital, Stamford, Conn.
Chicago Memorial Hospital, Chicago.
Lake View Hospital, Chicago.
St. Joseph's Hospital, Joliet, Ill.
Broadlawns, Polk County Public Hospital, Des Moines, Iowa.
Southern Baptist Hospital, New Orleans.
Trinity Lutheran Hospital, Kansas City, Mo.
Evangelical Deaconess Home and Hospital, St. Louis.
St. Francis Hospital, Grand Island, Neb.
Immanuel Deaconess Hospital, Omaha.
City Memorial Hospital, Winston-Salem, N. C.
Westmoreland Hospital, Greensburg, Pa.
Harrisburg Polyclinic Hospital, Harrisburg, Pa.
Chestnut Hill Hospital, Philadelphia.
Moses Taylor Hospital, Scranton, Pa.
General Public Hospital, St. John, N. B.
St. Martha's Hospital, Antigonish, N. S.

The following additional hospitals have been approved for residencies in specialties:

Union Printers' Home and Tuberculosis Sanatorium, Colorado Springs, Colo.
Silver Cross Hospital, Joliet, Ill.

Series of Tests of School Health Work.—In response to invitations by the school authorities in seventy cities, the American Child Health Association has arranged to have made a series of tests of school health work which have been prepared by physicians, dentists, psychologists and practical educators. Through these tests, an attempt will be made to determine the relative value of various types of health service and health education. The tests have been checked for soundness by the combined judgments of physicians. Three teams of five specialists in various lines will devote the present school year to this program of testing in the cities selected. The health of pupils will be determined by special tests of vision, teeth, hearing, posture, cleanliness, nutrition and physique. The health habits, health attitudes and health knowledge of the pupils will be tested. The study will be a comparison of the results of health procedures in the school rather than a comparison of the children or of the cities. It is anticipated that the outcome of this study will be improved methods in school health service and health education, and in standards of organization; more accurate evaluation of school health practices, and the production of tests by which schools may measure their progress in their own health programs.

Smallpox and the Vaccination Laws.—The American Association for Medical Progress, in a study of smallpox in this country between the years 1921 and 1926, grouped the states according to whether they have (1) compulsory vaccination; (2) compulsory vaccination restricted; (3) compulsory vaccination optional with local health boards, and (4) compulsory vaccination only when smallpox is present; from official records the number of cases of smallpox, the number of deaths and the population in each state have been determined. The group of states in which compulsory vaccination is legal for at least part of the population comprise 31 per cent of the total population of the country; only 7 per cent of all the smallpox cases occurred in these states. The group of states in which compulsory vaccination is in some way restricted, for example, by allowing those who claim conscientious objection to be exempted, includes 10 per cent of the total population of the country, and this group had 24 per cent of the smallpox cases which occurred during this period in the whole country and 30 per cent of the deaths. There were found to have been in the first group fifty-seven cases of smallpox for every hundred thousand persons, and in the second group, 614 cases. It is not possible, the association says, to say that vaccination is enforced in the states of the first group, and in the second group there will also be states in which there is no serious outbreak of smallpox. However, in spite of these variations, the figures point to the conclusion that state regulations are a factor in accounting for smallpox morbidity and mortality. It appears from this tabulation that during this period there were, in all of the states listed, a total of 304,045 cases and 3,710 deaths from smallpox.

FOREIGN

Second International Congress of Radiology.—This congress will be held at Stockholm, July 23-27, 1928. Persons desiring to read papers at the congress must submit a typewritten abstract of the paper in English, French or German of not more than 400 words before January 1, and a page octavo before April 1. Should more papers be announced than can be read, the committee will select papers in the interest of the congress. They should not exceed fifteen minutes, and one lecturer may not submit more than two. Physicians desiring to register as members should forward the fee (40 Swedish crowns) to the secretary general, Axel Renander, Stockholm, promptly.

Postgraduate Courses in Germany.—The Kaiserin Friedrich-Stiftung, Kaiserin Friedrich-Haus, Berlin, N W 6, announces that postgraduate courses have been arranged with the help of the faculty of the university, some of which will be given in March and April, 1928, and others permanently. Some of the courses to be given next spring will last only ten days; for example, the course on metabolism by von Bergmann, Boas, Lubarsch and others, which will cover especially diabetes, adiposity, endocrine disturbances, and the course in obstetrics and gynecology by Abel, Bracht, Hammerschlag, Hirsch and others. The course in improvements in roentgen-ray work will be given, April 17-24, and will include lectures for three evenings, and discussions by Max Cohn, Dieck, Lazarus and others. The permanent courses last from two to four weeks. There will be temporary vacancies in clinics, hospitals and laboratories of at least two or three months' duration for those who want practical experience. Inquiries should be sent to the address given above.

Deaths in Other Countries

Prof. **Willem Einthoven,** for many years professor of physiology at Leyden University, inventor of the string galvanometer, from which was developed the electrocardiograph, winner of the Nobel Prize in medicine in 1924; at Amsterdam, September 29, aged 67.

Government Services

U. S. Public Health Service

Samuel B. Grubbs was promoted to the grade of senior surgeon, effective, August 13, and Milton H. Foster to the same grade, effective, September 11.——Asst. Surg. Bernard J. Macauley has been relieved from duty at New Orleans and assigned to U. S. Marine Hospital number 82, Norfolk, Va.——Passed Asst. Surg. Kenneth F. Maxcy was directed to proceed, August 17, to Richmond, Va., for the investigation of cases of typhus fever.——Acting Asst. Surg. Boyd G. Barentine was directed to proceed to Asheville, N. C., to obtain custody of and to accompany a leper to U. S. Marine Hospital number 66, Carville, La.——Asst. Surg. Gen. Warren F. Draper sailed for Europe, September 6, to study public health methods in Germany for two months as a part of the system of international interchange of public health officers. ——Acting Asst. Surg. Gen. John W. Kerr has been relieved from in charge of the division of personnel and accounts of the bureau and directed to undertake special studies relating to public health, establishing headquarters for this purpose at Washington, and Asst. Surg. Gen. Claude C. Pierce has been detailed in charge of the division of personnel and accounts of the bureau.——Surg. Louis P. H. Bahrenburg has been relieved from duty at Cleveland and directed to proceed to Copenhagen, Denmark, for duty in the office of the American consul.——Passed Asst. Surg. Milton V. Veldee has been relieved from duty at Copenhagen, Denmark, and directed to report to the Surgeon General, Washington, D. C., for duty. ——Acting Asst. Surg. Leon O. Spencer has been directed to proceed from New Orleans to Picher, Okla., for duty with the bureau of mines.——Asst. Surg. L. R. White has been assigned to duty at Ellis Island, N. Y.——Surg. R. C. Williams has been detailed as assistant surgeon general in charge of the division of sanitary reports and statistics of the U. S. Public Health Service.——Dr. Lynne A. Fullerton has been promoted and commissioned to the grade of surgeon, effective, September 18.——Acting Asst. Surg. Lynn M. MacConnell has been directed to proceed to Pittsburgh to the bureau of mines for duty.——Asst. Surg. Fletcher C. Stewart has been relieved from duty at Hongkong, China, and assigned to duty at Manila.

Navy Personals

Comdr. Alfred L. Clifton has been ordered from the U. S. S. *Nevada* to the naval hospital, Portsmouth, N. Y., and Lieut. James A. Bass from the U. S. S. *Oklahoma* to the naval dispensary, Washington, D. C.——Lieut. John C. Vermeren has resigned as an officer in the navy medical corps.—The following lieutenants (j. g.) have resigned from the service: Frederick A. Hemsath, Hanford Phillips and Frank M. Townsend, Jr.

Army Personals

Capt. Don G. Hilldrup has been assigned to duty at the U. S. Military Academy, West Point, following a period of instruction of about three months at the Mayo Foundation, Rochester, Minn.——Capt. Levy S. Johnson has been assigned to Marshall Field, Fort Riley, Kansas, for duty as flight surgeon.——Capt. Walter C. Royals has been relieved from duty at the Letterman General Hospital, San Francisco, and will sail, November 26, for New York, reporting on arrival to the general dispensary for duty.——Major Martillus L. Todd has been relieved from Fort Brown, Texas, and will sail about December 9 for the Hawaiian Department for duty.——Capt. Anthony J. Greco has resigned as an officer of the army, effective, October 21.——Major Seymour C. Schwartz has been relieved from duty at Fort Sheridan, Illinois, and assigned to the Amry Medical School, Washington, D. C., for duty.——Lieut. Stanley W. Matthews will sail from New York about December 1 for the Canal Zone for duty.——Capt. Cyrenius A. Newcomb's resignation as an officer of the army has been accepted by the President.—— Lieut. Col. William H. Richardson has been relieved from duty at Fort Hayes, Ohio, and will sail about December 1 for the Canal Zone for duty.——Majors Norman T. Kirk, Fort Sam Houston, Texas, and Bertram H. Olmsted, Fort Leavenworth, Kan., will sail from San Francisco about Jan. 13, 1928, for the Philippine Islands for duty.——Lieut. Col. James F. Hall, Fort Humphreys, Virginia, and Capt. Rees S. Lloyd, Washington, D. C., will sail for the Philippine Islands for duty about Dec. 21, 1927.——The following officers, on completion of their tour in the Philippines, will be assigned to stations in this country as indicated: Major James A. Bethea, Letterman General Hospital; Major Frank D. Francis, Walter Reed Hospital; Major John J. Madigan, Fort Bragg, North Carolina; Capt. Clyde M. Beck, Army and Navy General Hospital, Hot Springs, Ark.; Capt. John A. Matson, Fort Andrews, Massachusetts. Lieut. John A. Worrell, Jr., will sail about December 1 for the Canal Zone for duty; Col. Christopher C. Collins, on completion of his tour of duty in the Philippines, will be detailed to the organized reserves, second corps area, with station at Newark, N. J. ——Major James C. Kimbrough has been assigned to the Mayo Clinic for work in urology for a period of four months. ——Lieut. Col. Edward B. Vedder and Major Samuel A. White have been detailed to attend the Seventh Congress of the Far Eastern Association of Tropical Medicine, Calcutta, India, December 5.—— Major Lloyd E. Tefft will proceed from the Fitzsimons General Hospital, Denver, to his home and await retirement for the convenience of the government. ——Lieut. Col. Cosam J. Bartlett was promoted to the rank of colonel, effective September 21.

New Building for School of Aviation Medicine

The army school of aviation medicine has moved into its new building at Brooks Field, San Antonio, Texas, which was designed and constructed for its use. The school was an outgrowth of the World War, and until last year was at Mitchell Field, Long Island, N. Y., moving south in the interest of greater efficiency. Twenty medical officers were graduated as flight surgeons from the school in the last fiscal year, nine from the regular army, nine from the reserve corps, and two from the navy, and eight reserve officers and two national guard officers were graduated as physical examiners for the air corps. The course for flight surgeons covers three months of intensive instruction in matters pertaining to a flier's fitness for going into the air. Advanced instruction is given in mental diseases and in the eye, ear and heart, and students are taught to recognize the manifestations of "staleness," an insidious and dangerous ailment which may exist unknown to aviators. Flight surgeons, after completing this course and on being assigned to flight fields are encouraged to qualify as airplane pilots. There are fifty-one flight surgeons at the various air corps fields, and all but one are on a flying status. There are also twenty regular army flight surgeons who are not on duty with the air corps, and five examiners. In the medical reserve corps, there are thirty-four flight surgeons and thirty-three examiners now on an inactive status, and four flight surgeons and nine examiners are now assigned to the National Guard Air Corps.

Examination for Entrance to U. S. Public Health Service

Examinations for entrance into the regular corps of the U. S. Public Health Service will be held, November 7, at Washington, D. C., Chicago, New Orleans and San Francisco. Candidates must not be less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily oral, written and clinical tests before a board of medical officers and undergo a physical examination. Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Increased Demand for Flight Surgeons

The commissioning of the new air craft carriers *Saratoga* and *Lexington*, and the development of other aeronautic activities in the navy, are expected to result in the issuance of additional orders involving flying for members of the medical corps. Recently orders involving flying were issued to twelve flight surgeons.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 24, 1927.

Vital Statistics

The annual report of the chief medical officer of the ministry of health, just published, shows that the year 1926 ranks with the year 1923 as the healthiest in the history of this country. The death rate for both years was 11.6 per thousand, and there was a conspicuous absence of influenza and its attendant ailments. The infant death rate in 1923 was 69; last year, 70. Thus there is no trace in the vital statistics of 1926 of any evil effect exercised on the population by the severe industrial upheavals that occurred. The statistics are as follows: Births, 694,563, a rate of 17.8, the lowest on record, except that of the war years. Deaths, 453,804, a decrease of 19,037 from the previous year. The infant mortality rate per thousand born was 70, compared with 75 in 1925. This presents a saving of 40,000 infant lives over and above the annual average saving in 1901-1910. Cases of infectious diseases notified during 1926 were 300,892, against 307,941 in 1925. The chief causes per thousand deaths were: diseases of the heart and circulation, 188; bronchitis, pneumonia and other respiratory diseases, 150; cancer, 117; diseases of the nervous system, 103; tuberculosis, 82. These five conditions, and not the pestilences of a former day—smallpox, typhus, typhoid, ague, plague or cholera—which as widespread national scourges have already been defeated, are the outstanding physical enemies that have to be combated. The growing menace of cancer is indicated by a table showing that while the deaths from it per million persons were 274 in 1847-1850, the number increased in 1926 to 1,362, the highest on record. The main incidence is in the digestive tract, a fact that introduces some of the chief difficulties of the cancer problem. Owing to the comparative inaccessibility of this part, cancer affecting it is more difficult of diagnosis and less amenable to treatment. Hope for the future is considered to lie in the discovery of some means, such as a biochemical test, of early and certain diagnosis, followed by some treatment not involving operation, and, secondarily, in providing an explanation of the causation, opening up a way to prevention. Progress in hygiene during the last eighty years is illustrated by the following statistics:

	Deaths per 1,000 Persons	Deaths of Infants, per 1,000 Births
1846-1850	22.4	157
1866-1870	21.2	157
1886-1890	18.5	145
1906-1910	14.4	117
1921-1925	10.9	76

These figures show that in spite of an enormous increase of population the total death rate and the infant mortality rate have been halved within four generations, that the mortality of childhood is a third of what it was eighty years ago, and that the "expectation" of life for a child born in this country today is not less than seventeen years more than it was for a child born in 1846. As a result of the neglect of vaccination, smallpox alone is regaining lost ground among infectious disease; 10,146 smallpox cases were notified during 1926, Durham accounting for 6,645. It is true that it was mild in degree and had a low mortality, but in certain districts it has been allowed to become a scourge, while in other similar districts invaded it has been stamped out. Sir George Newman enters a strong plea for the control of diphtheria by the method of toxin-antitoxin immunization which he declares to be safe and reliable. The outlook for the future is hopeful, because the science and art of preventive medicine are extending in almost all directions, knowledge of it is becoming more applicable and effective, and public opinion is supporting the cultivation of health and fitness in the individual. There is more willingness to live in the open air and take recreative exercise; more sensible views prevail as to food and clothing; sobriety is increasing; industry is safeguarded from many of its former dangers; the housing of the people is steadily improving, and, most effective of all, the value of education is being more generally appreciated. Much disease and impairment remain, but we are on the high road to their amelioration.

Clover and Malaria

In a letter to the *Times,* a correspondent calls attention to the value of clover in the prevention of malaria. He refers to a passage read to him by Dr. Bateman of the Church Missionary Society Hospital, Old Cairo, out of Dr. d'Herelle's book "Immunity in Natural Infectious Diseases" stating that the introduction of the wild clover plant into parts of Argentina and the coast of Holland has secured the disappearance of the malaria mosquito in those parts. Dr. Bateman added that it was the profusion of the clover fields in the delta of the Nile, which are allowed to flower profusely through months of the year, that saved Egypt from the malaria mosquito though its neighbor Palestine was a victim. As the wild clover of Egypt is the most vigorous weed in the country, and a very free flowering shrub, it should not be difficult to introduce it into the Sudan in localities where human beings make clearances and live. It is suggested that the Rockefeller specialists might turn their attention to the matter.

Medical Confidences

The violability of information acquired by physicians in the course of their practice has been again discussed, as mentioned recently (The Journal, August 27, p. 704). As has been frequently demonstrated, English law does not recognize any privilege for the physician. Dr. A. C. Gemmell, in a letter to the *British Medical Journal,* throws a new light on the subject. He points out that it is not a question of medical privilege but of medical honor which seems to be lost sight of. It is essential for the benefit of the patient that what he confides to his physician should be kept inviolate; on this assumption he confides in his physician, and the relation between physician and patient is based on the trust of the patient. It can never be right for that trust to be betrayed. The amount of pressure (he is referring to the legal penalties for refusal to disclose) has nothing to do with it; no pressure, however great, can excuse a dishonorable action. The penitent confesses to the priest for the saving of his soul; the patient confides in his physician for the healing of his body. The trust is as sacred in the one case as in the other. If the priest accepts and keeps inviolate the trust, the physician can do no less. In the case of the confessional, the problem was decided by the refusal of the priest to reveal in a court of law anything told to him in the confessional. There was no legal sanction for this, there is no legal sanction today; but the courts learned by experience that by no threat or compulsion could a priest be forced to reveal what he deemed himself bound in honor to conceal. Dr. Gemmell suggests that in proposing to seek legislation on this point we are approaching the problem from the wrong direction. For one reason, legislation would probably not give us what we want; for another, as the problem has nothing to do with votes, parliament would never find time for it. The only way to insure that patients' confidences are not betrayed is to refuse to reveal them without the consent of the patient; that is to say, we must fight exactly as the Catholic Church fought. No judge should be able to compel a physician to do a dishonorable act. It is a dishonorable act to betray a trust, and no words of any judge can

make honorable that which is dishonorable. If a physician is ordered to betray the trust of his patient, he should refuse. It is possible or probable that he will be committed or fined for contempt of court; Dr. Gemmill holds that it is better to be so committed than to do a dishonorable action. However, the general view in this country is that if a physician is told by a judge that the law does not allow him any privilege and that he must disclose, this absolves him from responsibility for disclosure.

An Anesthetist's Fatal Experiment on Himself

Mr. S. Wilson, senior anesthetist of the Manchester Royal Infirmary and an authority on the administration of anesthetics, was found dead in his study. When discovered he was wearing a mask, and is believed to have died while experimenting on himself. There was a smell of nitrous oxide, and all the apparatus in the room appeared to have been in recent use. An oxygen cylinder was found with the tap open. Mr. Wilson was in the habit when alone of administering to himself various mixtures of nitrous oxide and oxygen with the object of making discoveries. He had often been told how silly that was but always replied that it was perfectly safe and that with the up-to-date apparatus he was using nothing wrong could happen. He seemed to have been trying to find a mixture of nitrous oxide, oxygen and air which would leave the patient conscious of everything but pain. It appears that he thought he was taking a mixture of gases (nitrous oxide and oxygen) when in fact he was getting only the nitrous oxide, as the oxygen cylinder was exhausted. The coroner said that the most extraordinary feature of the case was that such a distinguished anesthetist should not have considered these experiments dangerous. He thought that Mr. Wilson had taken a risk with himself he never would have taken with any of his patients. A verdict of accidental death was returned.

The Chinese Method of Paying Physicians Advocated for England

"This greatly decreasing death rate, with, presumably, a similarly or possibly greater diminishing sickness rate, will, in my opinion, at no very distant date, compel physicians solely as a means of self-defense to adopt some different method of payment." This passage occurs in the annual report of the health officer to the borough of Greenwich, Dr. E. G. Annis. He records that the crude death rate for the borough in 1926 was 10.89 per thousand, being the lowest since the inauguration of the borough and one that compares favorably with the 11.6 rate for the county of London and the great cities. Dr. Annis holds that the revision of the method of payment for physicians is a matter of some urgency. He says that the earlier this question is taken into consideration the better, before the general death rate has fallen very much lower. He suggests that a system of capitation fee based on a standard death rate figure should be agreed on, such fee to be increased as the death rate became lower, or decreased as the death rate became higher during any period. In this way physicians would be encouraged to take advantage of all the various means at their disposal for dealing with the different classes of disease. In his opinion the general health of the public would be materially improved, because the natural desire of physicians to increase their fee would encourage them to be active disseminators of preventive health measures, and the machinery that is already provided under the insurance act for making backward authorities financially responsible for insanitary conditions leading to increased sickness and ill health would be much more likely to be put into operation. Certain suggestions on these lines have been placed before the medical profession generally in various ways, but up to the present the idea has not received much favor. The health officer goes on to quote an address on this question delivered to the National Association of Insurance Committees by Lord Cozens-Hardy, in which the following passages occurred: "The principal burden of malady belonged to the category of preventable disease. It was in the interests of the medical faculty as much as of the approved societies that insured persons should be kept well. Long spells of sickness were not profitable to the panel physician, but they had nearly got to the sensible Chinese system of paying the physician when in health and ceasing payment when ill. There was no reason why physicians should live on other men's diseases. Instead, let them be handsomely paid for keeping people well. It would be possible to double the incomes of the physicians if they would have their sickness, and there might come a time when their rate of remuneration would be in direct ratio to the fewness of their calls." Dr. Annis refers to an article in one of the monthly reviews dealing with this question, in which it is pointed out that the profession "are more interested in illness than in health, and though many of them are admirable, directly we are their 'patients,' and are definitely ill, preferably in bed, it is not among their recognized functions to keep the community fit." In a letter to the press, an official of one of the "approved societies" under the health insurance act points out that "this system does not seem to effect permanent cures, because the percentage of attendance—if the results are to be judged by the number of certificates issued by the medical profession—must have been higher last year than in any of the previous thirteen years since the institution of medical benefit under national health insurance. It is this fact which is worrying the administrative officials; they are asking what is the real value to the insured person of the compulsory payment for medical attendance and medicine." This experience, therefore, does not encourage optimism as to reduction of illness by the proposed scheme.

PARIS

(From Our Regular Correspondent)

Sept. 13, 1927.

The Eighth Congress of Physicians and Surgeons of Civil Hospitals

The Association professionnelle des médecins, chirurgiens et spécialistes des hôpitaux civils de France, founded Oct. 8, 1919, will hold its eighth annual congress in Paris, at the Faculté de médecine, Oct. 3, 1927. The topics on the program are: the formation of syndicates of hospital groups, the insurance of medical personnel against accidents and sickness while on duty, representation of the hospital medical corps on the administrative commissions of the hospitals, occupational accidents, regulation of fees for paying patients and common rights in the hospitals, and the repercussive effect of the social insurance law on public hospitals. Among the speakers are M. Saiget of Lorient, and Paul Boudin, medico-legal advisers of the association.

National Congress of Social Medicine and Pharmacy

M. Paul Garnal of Cahors, president of the Syndicat des pharmaciens of the department of Lot, has proposed holding at Cahors a Congrès national de médecine et de pharmacie sociales. The purpose of the congress will be to study the rôles and the professional and social functions of the Syndicats médicaux et pharmaceutiques in connection with the application of the social insurance law and in modern society in general.

Duties of the Sanitary Police on Board Vessels

The president of the republic has published a decree designed to regulate the use of wireless telegraphy for the recognition and the interrogation of merchant vessels. Among other provisions, the following are of interest: In this ser-

vice can be enrolled only physicians who have been registered for at least five years in the list of maritime sanitary physicians and who have had at least three years of navigation experience. Physicians enrolled by the sanitary authorities must be sworn in before the civil tribunal of the port of attachment, in accordance with legal usage. Before giving his declaration, the maritime sanitary physician duly enrolled must have filled out a questionnaire contained in the regular interrogation blank, the model for which will be furnished him by the maritime sanitary service of his port of attachment, and from which it will appear, if the replies are all favorable, that the vessel can be passed. The declarations emanating from duly registered ship physicians must be countersigned by the commander of the vessel. The radiogram must be drawn up as follows: The A——— (name of the steamer and the company) arriving at ——— (estimated hour and date of arrival in port) from ——— (country of origin), in sanitary condition, [signed] Commander B———, Dr. C———. The radiogram must be sent, at the most, twelve hours and, at least six hours, before the estimated time the vessel will arrive. It must be sent, either directly or through the mediation of the shipping company, to the sanitary director of the port D——— and must be transmitted without delay by the coastal wireless station serving the port in question, or, as the case may be, by the shipping company, at first by telephone, and, immediately afterward, must be confirmed in writing and by the production, under control, of the ship's records. Port sanitary directors or their delegates, on the receipt of radiograms announcing the arrival of ships in sanitary condition, must, if they think they can grant the anticipated clearance, inform by telephone and by writing the owner or agent of the expected vessel, and, at the same time, the personnel of their service (the physician and officers whose duty it is to inspect vessels on arrival). The shipowners or their agents, who must be equipped to receive promptly, on such occasions, the communications of the health service, will advise their ships by wireless that they have been exempted from the sanitary inspection on arrival, and will, at the same time, take the necessary steps to prepare for immediate disembarkation. The maritime sanitary service may still send on board when the boat arrives, or any time thereafter, one of its physicians or one of its officers to assure the regular progress of events. Aside from medical inspection, other measures (for example, deratization), and, in general, all the prophylactic measures to be applied to the vessel itself, after disembarkation of the passengers and removal of the mail, will be carried out on board vessels given clearance without medical inspection, under the same conditions as on board other ships.

A Franco-Belgian Medical Conference

The professors of the Faculté de médecine et de pharmacie of Lille are arranging for a Franco-Belgian medical conference to be held Oct. 23-25, 1927, during which a number of medical lectures and essentially practical demonstrations will be given.

Draft of Proposed Law Pertaining to the Suppression of Charlatanism in the Treatment of Venereal Diseases

The commission on the prophylaxis of venereal diseases, on the basis of the report of MM. Queyrat and Pfeiffer, has drawn up the following draft of a law: Whoever shall, by means of any form of publicity whatsoever, directly or indirectly, propose or suggest a form of treatment, a remedy or any form of care with a view to preventing, treating, relieving or curing venereal diseases shall be subject to imprisonment for from one month to two years and to a fine of from 5,000 to 25,000 francs, or to one or the other of these penalties alone. The same penalties shall be imposed on persons who shall advertise on public highways or in public places drugs or instruments designed for the treatment of venereal diseases. The following exceptions to the provisions of the present law are hereby established: (1) announcements or other statements inserted in journals or periodic publications of medicine or pharmacy, except cases in which such journals and publications are supplied gratuitously to persons who are not, by profession, physicians, pharmacists, surgeons, dentists or midwives; (2) notices affixed to the doors of hospitals or dispensaries controlled by societies recognized to be of public utility or carried on without profit, or in the homes of physicians; (3) the means of publicity utilized by the public authorities or by societies recognized to be of public utility. Articles that have been used in committing the misdemeanor shall be confiscated. Their destruction shall be ordered by a judgment of condemnation. The penalties may be doubled if the misdemeanor was committed with respect to minors. Article 463 of the penal code shall be applicable to misdemeanors covered by the present law only so far as it affects punishment by imprisonment. Whoever, having been sentenced through the application of the present law, shall, within five years of the date on which such sentence was imposed, commit a second misdemeanor coming under the application of the present law shall be regarded as a recidivist within the legal meaning of the term, and for recidivism a prison sentence shall be imposed.

Tuberculosis Day

As previously announced, a special program was arranged to be given Oct. 15-19, 1927, in celebration of the centenary of the birth of Villemin. The minister of war decided to set apart Sunday, October 16, as "tuberculosis day," which will be celebrated at Val-de-Grâce in the halls of the "troisième Fièvreux," in which Villemin gave instruction in clinical medicine to twenty-two successive classes of physicians training for the army medical corps.

The Crusade Against Cancer

Dr. Hoche has been appointed director of the Lorraine regional center in the crusade against cancer, replacing Professor Vautrin, recently deceased.

Proposed Reforms in the Medical Curriculum

A new point of view has been brought into the discussion of the medical curriculum by an article published in the review *Le jeune médecin*, which is the organ of the Union corporative des étudiants en médecine de Paris. A spirited campaign has been waged in the press against the P. C. N., or premedical, course, for this year of preparation for the study of medicine is solely scientific, and, furthermore, the course is not taken at the Faculté de médecine but at the Faculté des sciences. Since the new college, or baccalaureate, course for physicians is devoted in large part to the sciences, the P. C. N. year (premedical course) should be concerned chiefly with the aspects of the sciences that concern medicine directly: medical physics, biologic chemistry and medical botany, with special emphasis on medicinal plants. Medical students would thus gain time which they would be required to spend either in the hospitals or in attendance at lectures on general anatomy, which would perfect their knowledge of human anatomy and would aid them in their studies of the following years. Thus it would be possible to begin earlier the study of pathology, which is, after all, the principal purpose of a medical career.

Lumbarization of the First Sacral Vertebra

Numerous instances of sacralization of the fifth lumbar vertebra have been published, but M. André Léri, agrégé professor at the Faculté de médecine of Paris, and M. Pierre Lonjumeau assure us that the instances are not as frequent as is supposed, and that many of the sacralizations so called

are in reality only lumbarizations. Lumbarization is the reverse of sacralization and is characterized by a condition in which the first sacral vertebra is not united with the rest of the sacrum, so that the subject has six vertebrae of the lumbar type, more or less complete.

GENEVA

(From Our Regular Correspondent)

Sept. 20, 1927.

Review of Influenza Pandemic

The Medical Society of Geneva recently devoted a meeting to the influenza epidemic of the latter part of 1926 and early 1927. As an instructive diversion, Dr. Fromel presented a subject whose abdominal musculature was so well developed that he could contract at will each muscle, showing its action and insertions. He could make the platysma myoides and laryngeal muscles perform all sorts of acrobatic feats. At will, he could induce intense strabismus and varied forms of scoliosis; likewise paroxysmal pulse and gooseflesh.

Dr. Muller Beralonne introduced the discussion on influenza, showing that it was a pandemic, since it presented foci breaking out simultaneously at great distances apart. In December, 1926, France, Switzerland and Spain reported cases; then Belgium, Holland and England; afterward Germany and Egypt. The epidemic first occurred in schools and then became familial. In Switzerland the onset of the epidemic occurred at Berne, Basel and Geneva, was serious only in elderly people and attacked more women than men. The violent type so frequent in the epidemic of 1918 was not met. The distinction between ordinary seasonal influenza and pandemic grip is a difficult matter.

Professor Askanazy performed sixty necropsies on patients dying from influenza during the first week of January, 1927. Many of the cases were in elderly persons. This epidemic in many ways was similar to that of 1890. Death occurred above all in subjects with preexisting chronic bronchitis or endocarditis. The cause of death was bronchopneumonia, but this was not the hemorrhagic type encountered in 1918. At the Institute of Pathology, on the contrary, there were fewer frank pneumonias than during the corresponding months in the preceding years.

The Service of Hygiene of Geneva received ten thousand notifications; the maximum of mortality occurred during the first week in January, and the number of deaths was more than 28 per cent of the average rate in January.

Dr. Erath treated a large number of otitides; the duration of the discharge was short if paracentesis was done in time. He also encountered many mild cases of sinusitis in which recovery occurred without operation.

Dr. Charles Saloz had several cases of azotemia following mild influenza in subjects with debilitated kidneys, but recovery took place in all. Dr. Crame thought that subjects who had had the grip in 1918 did not contract the disease in 1926.

Dr. Guerdjikof read a very complete paper on influenza in pregnancy. He stated that the pregnant female appeared to be particularly liable to grippal infection, especially the more serious types. The gravity of the disease increases with advancing gestation and reaches its maximum from the sixth month onward. The patients offer little or no resistance to the infection. A temperature of 103 F. during forty-eight hours invariably interrupts gestation. The complications arising during the postpartum period are severe. Phlebitis is common. Guerdjikof insisted on close collaboration between the family physician and the obstetrician. Dr. Chassot maintained that interruption of pregnancy was quite as serious as its continuation and that the physician should act according to circumstances.

Trachoma in Switzerland

Trachoma, until recently rarely encountered in Switzerland, appears now to have taken a hold here. The number of cases reported in Switzerland during the last few years has been steadily on the increase. From eight cases in 1923, the number rose to thirteen in 1924, sixteen in 1925 and twenty-one in 1926. In 1926, for the first time, a "fresh" case was observed in a subject who had never been outside Switzerland and who was ignorant as to how or where she had become infected.

In 1927, some cases were observed in the canton of Argovie and Zurich, and then during the first part of July a real epidemic of trachoma developed among the personnel of the velodrome at Oerlikon. Almost at the same time the federal service of public hygiene was informed that some suspicious cases were noted among some foreign children sent to Switzerland for their summer vacation. Although the diagnosis of trachoma was not confirmed in all the reported cases by the specialists who examined them, it is nevertheless a fact that there are a certain number of patients in Switzerland with trachoma. The federal service of public hygiene in a recent circular to the medical profession implies that when possible every case is to be sent to hospital unless the conditions in which the patient lives are such that the possibility of transmitting the disease to his family or others can be excluded.

The federal service reminds physicians that the statutes of the federal council of Aug. 23, 1921, require that all cases of trachoma be reported to the board of health. The cantonal sanitary authorities have been requested to report all cases of suspicious ocular conditions that may come to their knowledge. When there is reason to suppose that the case is one of trachoma, the patient is to be examined by an ophthalmologist.

From the fact that trachoma has been rare in Switzerland the medical profession is not familiar with it, and Professor Vogt, director of the ophthalmologic clinic at Zurich, has at the request of the federal service of public hygiene drawn up some practical indications for the use of the profession as a guide in suspicious cases.

The sanitary authorities rely on the collaboration of physicians in order to check the further progress of this contagious process.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1927.

The Railway Sanitary Service in Italy

The government railway sanitary service in Italy is administered by two distinct groups of physicians. One group, about fifty in number, is composed of full-time officials; a second group, much more numerous (about 2,000), is constituted by physicians who devote to the railway administration only a part of their professional activity. To the latter group belong the division physicians, the consultants and the specialists. The division physicians perform fiscal duties in connection with the diagnosis of diseases occurring in the personnel of the railways, and serve, on occasion, as attending physicians. In addition, they perform vaccinations, look after antimalaria prophylaxis, and maintain the efficiency of the sanitary equipment at the railway stations and at other posts along the railway lines. The consultants and specialists assist, on request, the division physicians on the more important visits and in the solution of medicolegal problems. The physicians of the second group are compensated chiefly by free transportation on the railways, but they receive also some cash emoluments.

The full-time medical officers devote themselves chiefly to the examination of applicants for employment and to the

reexamination of the personnel, to the organization of first-aid services, to the collection of sanitary statistics, and to the supervision of the work of the division physicians. A central sanitary bureau, with headquarters in Rome, directs and controls the services of all the sanitary officials attached to the railways, and keeps a close contact, in matters pertaining to the health of travelers, with the public health service and the military health service.

Hygienic Improvement of Municipal Animal Shelters

The general management of the public health service, at the request of the federation of anticruelty societies, has issued instructions to the prefects of the realm to effect improvements in the hygienic conditions of municipal animal shelters. Animals impounded in such shelters must be treated humanely, and, when possible, an understanding should be reached with the local society for the prevention of cruelty to animals in regard to the proper management of the shelters, although their supervision should remain in the hands of the communal veterinarians. The elimination of dogs remaining unclaimed must be accomplished by the most rapid and the least painful methods; for example, by the use of carbon dioxide and chloroform vapors.

Sanitary Provisions for Emigrants

As a result of recent agreements entered into between the governments of the United States and Italy, the medical examination of emigrants from Italy whose destination is the United States will henceforth be carried out in Italy, at the general consulates of the United States, in Naples, Palermo and Genoa. The immigration papers will also be made out here. The advantage will be that persons who pass a satisfactory medical examination will be able to disembark at once on reaching America and proceed on their journey, saving themselves the inconvenience of waiting to be examined by the immigration officials at the port of destination.

Offer of a Sanitary Airplane

The commissioner for the Red Cross Society has informed the government that the society plans to present to the national air fleet a sanitary airplane, to be built by subscriptions of its members. In addition, the medical "syndicate" of the province of Milan has directed an appeal to all the physicians of Italy suggesting that they contribute toward the building of an airplane-ambulance to be offered to the government.

A Course in Medicine for Missionaries

For the first time, a special course in medicine and surgery, for the benefit of missionaries, is to be given at the University of Parma. The course will cover a period of four years and will be taken by students enrolled in institutes for the training of foreign missionaries. The inauguration of the new course was celebrated recently in the Great Hall of the university.

A Commission for the Supervision of Pharmacies

The "syndicate" of the pharmacists of Rome has appointed a commission for the surveillance and supervision of the pharmacies of that city. The purpose of the commission is to look after the enforcement of the laws and sanitary regulations, especially with regard to: (1) the application of the prices of medicaments recently established by the government, particularly with reference to the specialties that must be sold at the price specified by the manufacturer; (2) the observance of the hours of employment in the pharmacies; (3) the personnel authorized by law to practice pharmacy, which must always be present and must hold the special title of "pharmacist," and (4) the liberty of pharmacists in the practice of their profession.

BERLIN

(From Our Regular Correspondent)

Sept. 17, 1927.

The International Congress of Hereditary Science

The International Congress of Hereditary Science, held in Berlin, September 1-7, was well attended. Professor von Wettstein of Vienna emphasized in his address that, in spite of the achievements of the devotees of hereditary science, the theory of evolution had not received the aid from that direction which it had expected. He said that the main reason for this was that the investigators of heredity occupied themselves chiefly with the laws of hereditary transmission and did not concern themselves with the laws governing the overthrow of hereditary influence. (To be sure, for the theory of evolution, hereditary transmission was necessary for the preservation of continuity, but the theory of the overthrow of hereditary influence was also needed, for otherwise there could be no progress.) Furthermore, it was because investigators of heredity had associated hereditary transmission with certain material elements called genes, or hereditary factors, and because they were convinced of the unchangeableness of these hereditary factors. On the basis of these assumptions, the old darwinian theory of selection, which appeared to be overthrown by the discussion of recent decades, has again been raised aloft by a few investigators of hereditary transmission. New researches must be instituted, unless one is willing to admit that either the theory of evolution is false or that investigators in the field of heredity are in error. It must be established whether also the qualities of the types that are more distantly related are subject to the mendelian laws in the same manner as the characteristics of species and races. Secondly, researches are needed to determine whether the genes, or hereditary factors, are in reality dependent solely on the chromosomes or whether also the body of the cell—the plasma—is capable of being the carrier and transmitter of hereditary qualities. Thirdly, greater attention must be given to the influence of environment, and other external factors, than has been done in the past. Lack of space prevents presenting more than a few excerpts from the contents of other addresses. Professor Pézard of Paris discussed sexual hormones and mendelian hereditary transmission in chickens. If the male is castrated, the special characteristics of the feathers—for example, the form and color—remain unchanged; even the spur continues to grow. If, however, the ovaries are removed from the female, feathers of the male type appear, and the spur develops. The external appearance of the hen so treated comes to resemble that of the male. Pézard concludes from this and a series of other observations that the plumage of the male and also his spur have a neutral character. With the hen it is different. Here the quality of the feathers varies with the nature of the hormones. Further evidence is furnished by the fact that in capons the implantation of ovaries led to the development of female plumage and occasionally to the disappearance of the spur. Thus the characters of the one sex are contained or are producible in the other, to a certain extent at least—they exist potentially in the other. Pézard and his collaborator, on the basis of various experiments in this direction, have propounded a theory in regard to egg crossing. Various phenomena that have been observed in egg crossing they ascribe to the influence of hormones.

Dr. N. J. Vavilov discussed the geographic gene centers of cultivated plants. The institute for applied botany in Leningrad has carried out, during the past twelve years, a series of geographic researches on the range of occurrence of cultivated plants. It could be shown that the several varieties of plants are restricted to certain localities. In

spite of the fact that agriculture has existed since ancient times, it proved possible to connect clearly the migrations of man with the present distribution of plant life. This applies particularly to wheat, barley, oats, and a number of other plants. In this manner, common centers for large groups of cultivated plants could be ascertained and their original habitat discovered.

Professor Baur said that among all civilized nations there are laws protecting intellectual products in the form of literature, technical articles, and the like, but there is as yet no means of protecting property rights in new plant productions. Since, however, new species of plants that are produced only after years of laborious cross breeding may require the expenditure by the first grower of from $12,000 to $25,000, it is no more than right to allow the first grower to reap a reward. Preliminary proposals as to the most feasible method of affording growers such protection have been made in several countries. The problem has been attacked, but nothing definite will be accomplished until an international commission, as Professor Baur suggests, has been appointed to inquire into the matter.

Death of Prof. E. Meyer

Prof. E. Meyer, head professor of internal medicine at the University of Göttingen, has lost his life in the Swiss Alps. He appears to have fallen from what is regarded as a safe roadway. He was only 53 years old, which is a surprise to all those who have known him for several decades as an excellent clinician. Among his most important researches are his studies on diabetes insipidus. Meyer was also occupied with studies on the water content of the body. Numerous articles concern widely divergent fields of internal medicine, particularly diseases of the blood. As a true pupil of Friedrich Müller, Meyer was an eminent research worker, an excellent teacher, and a successful physician.

The Crusade Against Rheumatism

The Deutsche Gesellschaft für Rheuma-Bekämpfung has been formed in Berlin. In the draft of the constitution of the society, its object is said to be: the coordination of all endeavors pertaining to the study and control of rheumatism; the encouragement of scientific researches on the nature, the causes and the incidence of rheumatic disorders; dissemination of the results of scientific researches, not only in the homeland but also in foreign countries, by means of suitable publications, and, finally, the collection of information and material for the study of rheumatic disorders and their control, from domestic sources and from foreign lands. The society constitutes the German section of the International Committee for the Study and Control of Rheumatism.

Marriages

IRVING SHERWOOD WRIGHT to Miss Grace Mansfield Demarest, both of Bloomfield, N. J., October 15.

CLARENCE OLIVER HEIMDAL, Rochester, Minn., to Miss Emma Goodfellow at Superior, Wis., August 24.

CYRUS F. HORINE to Miss Blanche Lee Martin, both of Baltimore, at Hagerstown, September 17.

WILSON THOMAS DEAVER, Ensley, Ala., to Miss Jettie Mae Jackson of Haynes, September 1.

IVAN E. BROUSE, Creelman, Sask., to Miss Ethel Irene Smith of Comox, B. C., September 19.

JOHN DEXTER CAMP, Boston, to Miss Blanche Esther Eiffe at Salem, Mass., September 3.

JOHN NEILSON, JR., to Miss Elizabeth Pettigrew, both of New York, September 28.

Deaths

William Stanley Gramling, Miami, Fla.; University of Alabama School of Medicine, Tuscaloosa, 1894; member of the Florida Medical Association; served during the World War; formerly member of the state board of medical examiners; aged 55; died, September 8, at the Battle Creek (Mich.) Sanitarium, of heart disease.

Friedrich E. Reichardt, Chicago; Chicago Homeopathic Medical College, 1896; formerly medical director of the Chicago Sanitarium; aged 69; died, September 27, of skull fracture, received when a rock was hurled through the window of a street car in which he was riding, presumably by a speeding train.

John B. Macdonald ✠ Hathorne, Mass.; Medical School of Maine, Portland, 1904; member of the American Psychiatric Association and the New England Society of Psychiatry; for eleven years superintendent of the Danvers (Mass.) State Hospital; aged 53; died, September 6, at Arlington, of chronic nephritis.

John Thomas Duggan, Worcester, Mass.; Bellevue Hospital Medical College, New York, 1883; member of the Massachusetts Medical Society; city physician, formerly member of the school board, and mayor of Worcester; aged 72; died, September 5, of chronic nephritis.

Thomas Littlewood ✠ Pittsfield, Mass.; Dartmouth Medical School, Hanover, 1907; served during the World War; on the staff of the House of Mercy Hospital, and formerly assistant superintendent of the Gardner (Mass.) State Colony; aged 46; died, September 13, of heart disease.

Andrew J. Edstrom ✠ Stromsburg, Neb.; Creighton University School of Medicine, Omaha, 1915; formerly on the staff of the Concordia (Kan.) Hospital; medical director of the Home Hospital, where he died, August 23, of injuries received in an automobile accident, aged 49.

Scott William D. Brewer, Singer Glen, Va.; Medical College of Virginia, Richmond, 1885; member of the Medical Society of Virginia; chairman of the county board of health; member of the county school board; aged 68; died, June 6, of angina pectoris.

John A. Grafft, Hamilton, Ohio; Miami Medical College, Cincinnati, 1892; member of the Ohio State Medical Association; served during the World War; for two years president of the city council; aged 60; died, September 14, of heart disease.

Cadar P. Helms, New Boston, Texas; Kentucky School of Medicine, Louisville, 1893; member of the State Medical Association of Texas; past president of the Bowie County Medical Society; county health officer; aged 68; died, May 24.

J. Paul Lukens, Wilmington, Del.; Hahnemann Medical College of Philadelphia, 1878; formerly member of the board of education; on the staff of the Homeopathic Hospital; aged 71; died, September 6, of carcinoma of the prostate.

Clarence Hoffman, Philadelphia; Jefferson Medical College of Philadelphia, 1906; member of the American Association of Anatomists; associate in anatomy at his alma mater; aged 50; died, September 21, of cerebral hemorrhage.

John R. Atwell, Wicomico Church, Va.; National University Medical Department, Washington, D. C., 1898; aged 53; was killed, September 11, when he jumped from the balcony of the Harriet Lane Sanitarium, Washington, D. C.

Peter Francis Gaunt ✠ Milwaukee; St. Louis College of Physicians and Surgeons, 1902; formerly on the staffs of the Deaconess Hospital and Marquette Hospital, where he died, September 5, aged 58, of carcinoma of the stomach.

Robert Lee Harris, Hope, Ark.; College of Physicians and Surgeons, Little Rock, 1907; member of the Arkansas Medical Society; on the staff of the Josephine Hospital; aged 52; died, September 7, of appendicitis.

Jacob Wisansky, New York; Columbia University College of Physicians and Surgeons, New York, 1905; member of the Medical Society of the State of New York; aged 46; died, May 14, of angina pectoris.

John Griffin, Brooklyn; Bellevue Hospital Medical College, New York, 1873; formerly health commissioner of Brooklyn and member of the board of education; aged 80; died, September 4, of chronic myocarditis.

John James Baxter ✠ Woonsocket, R. I.; Medical Department of the University of the city of New York, 1885; on the staff of the Woonsocket Hospital; aged 67; died, September 13, of heart disease.

Loyd Cason Roberts, Mineral Wells, Texas; Memphis Hospital Medical College, 1906; member of the State Medical Association of Texas; served during the World War; aged 47; died, June 24.

George C. Kinard ✠ Lincoln, Pa.; University of Maryland School of Medicine, Baltimore, 1885; coroner of Lancaster County; aged 66; died, September 13, at Bareville, of cerebral hemorrhage.

William Alvin White, Ashland, Ohio; Western Reserve University School of Medicine, Cleveland, 1891; aged 63; died, September 2, at the home of his son in Cleveland, of cerebral hemorrhage.

Margaret McGee Gilliland, Chatsworth, Calif.; Tennessee Medical College, Knoxville, 1908; formerly a practitioner in Tennessee; aged 48; died, July 31, at Los Angeles, of carcinoma.

David R. Shaffer, Oak Hill, Ohio; Starling Medical College, Columbus, 1884; member of the Ohio State Medical Association; aged 70; died, September 10, of dilatation of the heart.

Peder A. Hoff ✠ St. Paul; University of Minnesota Medical School, Minneapolis, 1900; formerly instructor in medicine at his alma mater; aged 53; died, September 5, of heart disease.

Thomas Clarkson Benson, Kansas City, Kan.; University Medical College of Kansas City, Mo., 1891; aged 71; died, September 10, of cirrhosis of the liver and bronchopneumonia.

William J. Haselden, Cades, S. C.; Louisville (Ky.) Medical College, 1896; member of the South Carolina Medical Association; aged 56; died, September 5, of angina pectoris.

Everett Eli Potter ✠ North Pownal, Vt.; Albany (N. Y.) Medical College, 1888; formerly member of the state legislature; aged 70; died, August 23, of heart disease.

Dean Nolon Beacom ✠ Denver; University of Colorado School of Medicine, Denver, 1922; aged 32; died, September 6, of hemorrhage, due to pulmonary tuberculosis.

Clarence Edward Bloomberg, Rock Island, Ill.; University of Minnesota Medical School, Minneapolis, 1927; aged 29; died, September 7, of pulmonary tuberculosis.

Milton F. Merchant, Ellendale, N. D.; State University of Iowa College of Medicine, Iowa City, 1879; aged 73; died, in August, at Riverside, Calif., of heart disease.

Gustav William Draesel ✠ Hoboken, N. J.; Cleveland College of Physicians and Surgeons, 1890; aged 62; died, July 16, at Bremerhaven, Germany, of heart disease.

Henry Nathan Diamond ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; aged 44; died, September 11, at the Mount Sinai Hospital, of pleurisy.

Gustav S. Schuricht, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1872; aged 73; died, July 3, of pernicious anemia and arteriosclerosis.

Vincent Leroy Hodges, Marion, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1902; aged 47; died, in September, of valvular heart disease.

William B. Finnegan, Ogdensburg, N. Y.; University of Michigan Medical School, Ann Arbor, 1882; aged 76; died, July 18, of carcinoma of the throat.

Louis N. Slaughter, Pitman, N. J.; Hahnemann Medical College and Hospital, Chicago, 1888; aged 64; died, May 28, at Trenton, of cerebral hemorrhage.

Mary Florence Taft, Cambridge, Mass.; Boston University School of Medicine, 1887; aged 74; died, in September, of carcinoma of the breast.

Frederick Warrington Stockton, Calgary, Alta., Canada; University of Toronto (Ont.) Faculty of Medicine, 1894; aged 59; died, June 25.

Solon Milton, Fort Worth, Texas; Forth Worth School of Medicine, 1907; aged 49; died, September 5, as the result of cerebral hemorrhage.

Thomas Glenn Newell, Adrian, Minn.; University Medical College of Kansas City, Mo., 1896; aged 69; died, in August, of chronic nephritis.

Harry McDaniel, High Spire, Pa.; College of Physicians and Surgeons, Baltimore, 1883; aged 76; died, August 22, of angina pectoris.

Albert Parker Rounsevell, Lemon City, Fla.; Rush Medical College, Chicago, 1878; aged 82; died, August 22, of chronic nephritis.

Jesse T. Bruton, Columbus, Kan. (licensed, Missouri, 1865); Civil War veteran; aged 95; died, August 12.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

JOHN WYOUGE BARNES

A Fake Psychoanalyst in the Toils

Much has been said of the ease with which impressionable women are, and have been, swindled via the psychoanalytic route. Supposedly hard-headed business men of more than average intelligence are duped, apparently, with equal ease. The case of Psychoanalyst John Wyouge Barnes is in point. Barnes made the mistake recently of deciding that Rochester, N. Y., offered a fertile field for his peculiar talents. But Rochester happens to have an especially wide-awake Better Business Bureau, whose manager, Mr. F. M. Willson, has had experience in tracking down frauds not only in New York but also in other states.

"Dr." John Wyouge Barnes seems to have a "way" with him. He is never long in a city before he is passing most of his time at exclusive clubs. Evidently believing that paid advertisements are not only a wilful waste of money but also poor form, he gets his publicity by appearing as a speaker before luncheon clubs, such as Kiwanis and Rotary. After having thus made his contacts with business men, Mr. Barnes would drop into their offices and casually suggest that they might do bigger and better things if they were properly psychoanalyzed and thus enlightened on their limitations and possibilities.

Mr. Barnes carries after his name the letters "M.D., M.A., Ph.D." He claims the M.A. and the M.D. from Heidelberg and the Ph.D. from Leipzig. He also claims to have been with Scotland Yard, London, for three years, although in what capacity is not quite clear. He describes himself as a world traveler, a character analyst, a consulting surgeon on mental disorders, a graduate of Columbia University, New York, as the sole survivor of the Princess Pat Regiment, as a financial consultant on National Cash Register financing, as a discoverer of men of brains for the British government—and as various other things.

Business was going well with Mr. Barnes in Rochester; he was moving in the most select circles, psychoanalyzing bankers, insurance agents and others; it is even said that one Rochester physician called him into consultation! Then Mr. Willson of the Better Business Bureau of Rochester happened to cross his path. It was not the first time. Mr. Willson had made the gentleman's acquaintance when Barnes was putting over a similar stunt in Toledo, Ohio, and at that time had suggested that Mr. Barnes produce some credentials. Instead, the "doctor" left town!

The Better Business Bureau of Rochester called the attention of the police of that city to Mr. Barnes' record, whereupon Mr. Barnes was transferred from the exclusive clubs to the jail. Here he was held for several days on a vagrancy charge, in the hope that some of his victims might prefer charges. But no; the phychoanalyzed business men were more than willing to let bygones be bygones and to charge their losses up to experience. At least some of the victims expressed themselves as being utterly opposed to appearing against Barnes, because of the fact that it would put them in the unenviable position of having been played for "suckers."

John Wyouge Barnes, M.D., M.A., Ph.D., of Heidelberg, Leipzig, Columbia, Scotland Yard, etc., when cross-examined by the Rochester police, unfolded what he claimed was the real story of his life. According to this, he was born in 1884; when about fourteen years old, he began working on boats as a cabin boy. For a time he was a sales-clerk in different stores in London. It was while thus employed that he claims to have discovered his psychoanalytic powers. He also claims to have been a bookkeeper for seven months in the Bank of England, a claim which is probably as true as that

he is a graduate of Columbia University. He came to the United States in 1918, and in the fall of 1919, as he puts it, "I added the degrees to my name." He admitted to the Rochester police that he had never been to college and that he had never served in the war, but that he had "psychoanalyzed" in New York City, Philadelphia, Washington, Chicago, Baltimore, Scranton, Indianapolis, St. Louis, Kansas City, Omaha, Davenport, Rockford, Beloit, Cleveland, Toledo and Roanoke. He also claimed to have analyzed a lot of salemen in the Hupmobile agency in Chicago.

He admitted, on cross-questioning, that he had told some of the Rochester victims that he was in the British army and held a license to practice medicine. He admitted, also, that he had picked up $162.50 from trusting Rochester citizens with a psychoanalytical turn.

In view of the fact that no one would appear against Barnes, the Rochester police had to turn the gentleman loose. It remains to be seen where he will next appear.

Correspondence

THE WESTERN ASSOCIATION OF PHYSICAL THERAPY

To the Editor:—In THE JOURNAL, September 24, in a query regarding a reprint entitled "Birth Marks" by Dr. Lynne B. Greene read at the Annual Meeting of the Western Physical Therapy Association, the correspondent somewhat implies that the possibly questionable scientific character of such reprint reflects on the possibly scientific and ethical standing of the association.. As president of the Western Physical Therapy Association may I have space in your valued columns to state that membership in the association is conditioned on membership in the American Medical Association; that the outgoing president of the American Electrotherapeutic Association is a past president of the Western, and the outgoing and the incoming president of the American College of Physical Therapy is a member of the Western; and lastly, that neither the Western nor the A. M. A. is to be judged solely by the utterances of one of its members.

JOSEPH E. G. WADDINGTON, Detroit.

"DIGITALIZATION"

To the Editor:—The editorial on "Digitalization" (THE JOURNAL, September 10) should not go unchallenged. It appears that the writer disapproves of digitalization. The editorial is out of tune with many of the articles accepted for publication by THE JOURNAL, as well as the special article on "The Therapeutic Use of Digitalis" (Robinson, G. C.; White, P. D.; Eggleston, Cary; and Hatcher, R. A., THE JOURNAL, Aug. 16, 1924, p. 504).

This editorial contains the assertion, "Digitalization means digitalis poisoning." Whatever the meaning when the word "digitalization" was coined, it is not generally used to signify the toxic action of the drug. Gould's Medical Dictionary, however, defines the word digitalization thus: "Subjection to the effects of digitalin or digitalis." The same dictionary contains the words "digitalism" and "digitalismus," which are defined: "The condition caused by the injudicious use of digitalis, consisting in paralysis of the cardiac action." Dictionary definitions, nevertheless, are not of paramount importance in determining one's reactions to this editorial. I feel confident that those of us engaged in teaching intend by the word digitalization the administration of digitalis to the point of obtaining its full therapeutic effects.

Eggleston, in his original article (Digitalis Dosage, *Arch. Int. Med.* **16**:1 [July] 1915) and in his later summary (Administration of Digitalis by "Eggleston Method," THE JOURNAL, March 13, 1920, p. 733) gave sufficient safeguards to enable the physician who heeds them to avoid undue toxic effects. It is absurd to state that the drug must be administered within certain minimal and maximal amounts. These amounts are simply guides for the original calculation of how much the patient probably must take to obtain the full value of the drug. The latter should be omitted or continued according to the results obtained; i. e., until the therapeutic effects have been achieved or the beginning signs of toxicity indicate that the administration of digitalis should not be pushed further in spite of the failure to obtain benefit.

One cannot accept the dictum "Digitalization should not be attempted if the patient has previously been taking digitalis even in fair-sized doses, as the symptoms caused may be more severe than desired." Eggleston also gave ample directions of how this might be done safely, and experience has shown him to be correct. What is the course followed when a consultant sees an insufficiently digitalized patient or when any physician, familiar with digitalis therapy, receives a patient already taking digitalis on the advice of a previous physician? I think I am safe in stating that, provided the indication for digitalis still exists, the drug should be administered, under certain precautions, until the therapeutic need of the patient has been met.

Unless one grants the contention of this editorial that digitalization means digitalis poisoning, one must deny the statement, "Complete digitalization will cause nausea, vomiting, complete loss of appetite for days, disturbance of vision, and generally a diminished secretion of the urine, although in the early stages of the large doses of digitalis the excretion of urine is increased." This, of course, is merely a partial list of the toxic effects of digitalis, and the writer seems to have forgotten that gastric and ocular symptoms do not occur in all cases even if the patient is seriously poisoned by digitalis.

Are the therapeutic and toxic effects of digitalis present at the same range of doses? The experimental work of Robinson and Wilson (A Quantitative Study of the Effect of Digitalis on the Heart of the Cat, *J. Pharmacol. & Exper. Therap.* **10**:491 [Jan.] 1918) showed that the therapeutic effects of the drug were present in cats at approximately 25 to 50 per cent of the minimal lethal dose, whereas the majority of toxic effects appeared at more than 50 per cent of the minimal lethal dose. I am of the opinion that sufficient clinical observations (Reid, W. D.: Some Toxic Effects of Digitalis, THE JOURNAL, Aug. 11, 1923, p. 435) have justified the conclusion that these observations are applicable to man.

Just what is the purpose of the sentence "The general practitioner should not thoughtlessly digitalize his patient unless he has hospital or other facilities for determining the exact condition of his heart and his excretory ability?" No one should *thoughtlessly* digitalize any one. Is it not well known that it is a common practice for those conducting outpatient cardiac clinics to digitalize certain patients who are seen only once a week? Some one of the less rapid methods of administering the drug is, of course, selected. If the general practitioner is not to digitalize patients in need of it, then this advance in cardiac therapy has surely lost much of its value to the public, for without doubt much of the work must fall on the general practitioner; there are obvious reasons why specialists and hospitals cannot see all these patients.

Physicians should be encouraged to become thoroughly familiar with the method of digitalis therapy advocated by Eggleston, and its modifications by others. They should be cautioned, in the selection of patients, not to forget the safeguards, and to use the less rapid methods of obtaining the full therapeutic effects of digitalis save in very urgent cases which are under sufficiently frequent observation.

WILLIAM D. REID, M.D., Boston.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SIGNS OF LIGHTNING STROKE

To the Editor:—Can you advise whether there is some way whereby one may determine when a dead animal has been killed by lightning? Will the blood congest about the injured parts of an animal killed by lightning?

L. S. Treadwell, New York.

Answer.—Judging from observations on man, animals killed by lightning may show a great variety of external lesions. It is also possible in some cases that no lesions can be found. Punctiform bluish or reddish spots would be produced by the outflowing current, and numerous fine extravasations of blood might occur with burns of varying degrees and more or less elaborate surface markings in the form of fine irregular zigzag lines and feathery tracings. If the animal was leaning against a tree or a house, the lightning might enter at the point of contact, and in that case there might be a marked burning with extravasation of blood and injection of the blood vessels at the point of entrance, and punctiform hemorrhages and burns at the points of exit. Of possible internal lesions may be mentioned broken bones, ruptured blood vessels, and ruptures of abdominal organs.

TOXICITY OF INDIGO CARMINE IN FUNCTION TESTS

To the Editor:—Will you please give me any information that you have as to the toxicity of indigo carmine solution as used in renal function tests? Several pharmaceutic houses have solutions of 1, 5 and 10 cc. ampules varying in strength from 0.4 to 0.8 per cent. No literature accompanies these ampules, and as it is desired to use the solution intravenously, please advise me as to the best solution that you deem advisable to use. Please omit name.

M.D., Washington, D. C.

Answer.—Indigo carmine is used in strengths of 0.4, 0.5 and 0.6 per cent. It is given either intravenously or intramuscularly. When the intravenous method is used and only the time of appearance is to be determined, 2 or 3 cc. of the 4 per cent solution is quite sufficient. Various clinics use as much as 10 cc. of 5 per cent solution. From 2 to 4 cc. of 5 per cent solution has been used without any bad results. If one wishes to use a large amount it might be safer to inject it into the muscles of the buttocks. This produces a certain amount of local pain.

ARTIFICIAL IMPREGNATION

To the Editor:—I have a patient, aged 29, who desires another child. Her first child is now nearly 3, and was born five years after her marriage. In spite of every effort to have a second child, she has never been pregnant since the first. As she is nearing the age when pregnancy becomes more a source of dread than a blessing, she has asked me if there is not some method of artificial impregnation which could be utilized in her case. Both husband and wife are intelligent and have (in their own minds) run the chance of being objects of tolerant amusement to me rather than forego the pleasure and satisfaction of another baby before the woman's age makes parturition a jeopardy. I assured them that their efforts, far from being ridiculous, were laudable, and that I would determine by writing you whether or not it is feasible. Has there been any method devised whereby the ejected semen may be injected by syringe into the previously dilated cervical canal? If so, will you please acquaint me with the facts or cite the articles in the literature where they may be found? Please omit name.

M.D., Ohio.

Answer.—Before attempting any insemination tests it is absolutely imperative that a specimen of semen be carefully examined. The spermatozoa must be normal in number, size, shape and motility, and there must be no bacteria or pus cells present in the semen. In the case cited, no pregnancy occurred for five years after marriage and this may have been the husband's fault and not the wife's. It is assumed, of course, that contraceptive measures were not used.

If the semen is normal in every respect and a bimanual examination of the patient fails to reveal any abnormalities, a tubal patency test must be performed to make certain that the tubes are open, for if the tubes are closed the insemination will be useless and perhaps harmful. If the semen is normal and the fallopian tubes permeable to gases, then insemination may be performed. The patient and the husband should, however, be told that as many as fifty inseminations may have to be performed for success to follow, because frequently many natural coital acts are necessary to bring about fertilization.

Sperm may be obtained either by coitus interruptus or by friction but not in a condom because of the difficulties in asepsis. A sterilized, wide-necked, small jar or bottle should be used for the collection of the semen. It is best to inject the sperm into the uterus immediately after it is obtained; but sperm will remain actively motile for a number of hours at room temperature. There are special instruments made for insemination, but an ordinary record syringe to which is attached a small thin piece of rubber tubing will suffice. The cervical canal should be dried thoroughly and only two or three drops of semen should be injected into the uterus. The patient should remain in a reclining position for twenty or thirty minutes after the insemination.

For the insemination to be successful, it must be performed as near to the time of ovulation as possible. In the human being this usually takes place at about the fourteenth to the sixteenth day after the beginning of the menstrual period. Hence insemination tests should be begun at about the fourteenth day and repeated daily or every second day until the nineteenth day. If no results follow, the procedure should be repeated during successive months. If it is assumed that in the human being ovulation can be provoked by coitus at about the eighth day in the cycle, and if the semen is to be obtained by coitus, then the insemination tests should be begun on the eighth day.

Insemination should not be undertaken lightly because the results have not been encouraging and because there is some risk of infection. Twenty-nine years is not in reality "the age when pregnancy becomes more a source of dread than a blessing" or "makes parturition a jeopardy," so the patient may safely wait one or more years. In the meantime, however, the semen of the husband may be examined and the tubes of the patient tested for patency.

POISONING BY DIAL OR ALCOHOL

To the Editor:—Recently it has been my duty to examine several young men aboard ship returning from shore leave who have presented symptoms of alcoholism or overdose of hypnotics, and to state which substance is responsible for their actions. Quite a practice has sprung up among the men of either taking dial "Ciba" alone or in conjunction with alcoholic beverages. I should like to have you describe the symptoms resulting from the taking of a larger than therapeutic dose of dial and also the method of differentiating this condition from acute alcoholism or ingestion of such a hypnotic as barbital.

Charles F. Flower, M.D., San Pedro, Calif.

Answer.—The symptoms of acute "dial" (diallylbarbituric acid) intoxication are prolonged stupor (which may last forty-eight hours or more) followed by many days of inertia. In milder degrees of poisoning, muscular weakness, incoordination, swaying on standing or walking, thick speech, dizziness, flickering before the eyes, and tinnitus are noted.

The test for alcohol concentration in the urine, as described by Emil Bogen (*California & West. Med.* **26**:778 [June] 1927) would be of decided assistance in the differentiation of these conditions.

NATURE OF OSTEOPATHY

To the Editor:—Will you kindly explain what is meant by osteopathic physician? What kind of a school is it? What is their method of treatment? In Los Angeles there are as many osteopathic physicians as there are M.D.'s. One does not know whether one is walking into an osteopath's or an M.D.'s office. Their signs read "Dr. ————, Physician and Surgeon." They remove tonsils, deliver babies, and as I understand perform major operations. Are they allowed to practice as such? Please omit name.

M.D., Los Angeles.

Answer.—The term "osteopathic physician" as originally adopted by the osteopaths is a person who treats the sick by the osteopathic method. This method consists of manual manipulation in the region of the spine. The osteopathic theory is that the articular surfaces of the vertebrae slip on one another, resulting in a "subluxation" or partial displacement supposedly crowding on the nerves and blood vessels which pass through the intervertebral foramina. Such subluxations, as a matter of fact, cannot be demonstrated on a cadaver, and skilled anatomists assert that they cannot be produced unless sufficient force is applied to crush the spine.

The osteopath claims that he relaxes the muscles by deep massage and by pulling and twisting the patient's body thereby "reducing" the subluxation.

In the earlier times the osteopathic school was entirely separate from the medical. Indeed, the osteopath claimed that as he did not use drugs or perform surgical operations "he was not practicing medicine." Since that time the osteopathic concept has been enlarged, the curriculum of osteopathic schools extended, and the practice of osteopathy broadened until now osteopaths are endeavoring to secure unlimited practice. They differ from medical schools, however, in that only one of their six schools presumes to require as much as one year of prefreshman college work; none of them have full-time expert teachers in the laboratory branches; their clinical facilities are limited largely to perambulatory cases, and they are unusually weak in their instruction in physical diagnosis. In these respects no one of the osteopathic schools can compare favorably with medical schools. Regardless of the wide differences educationally between osteopathic and medical schools, nevertheless, there are several states in which they are free to assume the privileges granted to physicians.

FURROWED TONGUE

To the Editor:—I have a case of furrowed tongue that I have tried to relieve, using all the drugs mentioned in the textbooks that I have. Would you please advise me what is the best treatment for this ailment? Kindly omit my name.

M.D., Arkansas.

ANSWER.—The ordinary case of furrowed tongue calls for no treatment further than regular cleansing of the furrows and assuring the patient that the condition is a malformation and is no indication whatever of syphilis or other chronic disease.

POMPHOLYX AND TINEAL DERMATITIS

To the Editor:—Will you kindly inform me of any late development in the treatment of pompholyx? Also differential points between pompholyx and vesicular eczema of the fingers?

JOHN F. MCHUGH, M.D., Shelby, Ohio.

ANSWER.—Dermatologists are inclining to the belief that pompholyx is tineal dermatitis of the hands and feet. It is treated as are the tineal inflammations.

REACTION AFTER ANTITOXIN

To the Editor:—A boy, aged 2, was given 1 cc. of diphtheria toxin-antitoxin in mixture at 5 p. m. At 11 a. m., next day, the temperature was 103 F.; at 8:30 p. m. he had a severe convulsion. Fever lasted until noon next day, having gradually subsided. One week later one-third cc. was given to test the reaction, at 5 p. m. At 5 a. m., twelve hours later, the temperature was 101; at 8:30 it was 103, and the child had a severe convulsion. The temperature remained about 103 all day until 5 p. m., when it was 105. At 5:20 p. m. there was a severe convulsion. At 9 p. m. the temperature was 103. The fever gradually subsided and was subnormal at 8 a. m. next day. The attack was accompanied with a severe diarrhea, no vomiting, which lasted about five days, a slight urticarial rash, very rapid, weak pulse and rapid respiration, extreme prostration, but no cyanosis. Was the reaction due to the small amount of horse serum? The child had never taken any serum previously. Or was it due to the diphtheria toxin not having been properly mixed with the antitoxin? If this child should have an attack of diphtheria would it not be dangerous to give it antitoxin? What, other than symptomatic, is the best treatment for these severe reactions?

C. M. FRANKLIN, M.D., Union Springs, Ala.

ANSWER.—The symptoms given do not completely correspond to those which are usually produced by horse serum. One naturally thinks of some other fever-producing toxic substance. Some definite information might be secured by the examination of some of the same toxin-antitoxin mixture if it should be available. However, the wide use of immunizing and therapeutic horse serums has led to reports of such variable resulting reactions that one hesitates to disbelieve that the symptoms here described may not be caused by horse serum in minute amounts. If this child should require therapeutic serum in the future the first injection should be of a small amount well diluted, and then gradually increasing doses should follow at intervals of one-half hour. A negative Schick test would indicate that immunization had been accomplished, and the fear of future need of antitoxin could be practically dismissed. A cutaneous test with a small amount of dilute horse serum might be useful in learning whether the child is susceptible to serum.

In the treatment of serum reactions, aside from symptomatic measures, the administration of epinephrine hypodermically is often of advantage.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Memphis, Nov. 14. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Eclec. Bd., Dr. C. E. Laws, Ft. Smith.

CALIFORNIA: Sacramento, Oct. 17-20. Sec., Dr. Chas. B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: Hartford, Nov. 8-9. Sec. Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeopathic Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 13-15. Sec., Dr. Henry W. Briggs, Wilmington.

FLORIDA: Winter Haven, Nov. 14-15. Sec., Dr. W. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

MAINE: Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, Dec. 13-16. Sec., Dr. Henry M. Fitzhugh, Baltimore.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

MINNESOTA: Minneapolis, Oct. 18-20. Sec., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 25-27. Sec., Dr. James Stewart, Jefferson City.

NEBRASKA: Lincoln, Oct. 31-Nov. 2. Sec., Mr. Lincoln Frost, Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Chas. B. Kelley, 1101 Trenton Trust Bldg., Trenton.

NORTH CAROLINA: Greensboro, Dec. 1. Sec., Dr. John W. MacConnell, Davidson.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 505 Saluda Ave, Columbia.

TEXAS: Fort Worth, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 6-9. Sec., Dr. J. W. Preston, Roanoke.

WEST VIRGINIA: Morgantown, Nov. 22. Sec., Dr. W. T. Henshaw, New Capitol Bldg., Charleston.

California February Examination

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held, Feb. 1-3, 1927, at Los Angeles. The examination covered 9 subjects and included 108 questions. An average of 75 per cent was required to pass. Of the 30 candidates examined, 21 passed and 9 failed. Nineteen candidates were licensed by reciprocity, and one by endorsement of his credentials. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
College of Medical Evangelists	(1925)	78.2
Yale University School of Medicine	(1925) 80.7; (1926)	85
Northwestern University Medical School	(1926)	82.7
Rush Medical College	(1921) 77.6; (1926) 78.6,	82.9
University of Illinois College of Medicine	(1926)	77.4
State Univ. of Iowa College of Medicine	(1925) 85.8; (1926)	79.9
Harvard University Medical School	(1926)	78.2
Tufts College Medical School	(1925)	85
University of Michigan Medical School	(1915)	86.9
Washington University School of Medicine	(1924) (1926) 82.1, 83.6, 87.2	80.8
University of Nebraska College of Medicine	(1926)	84
University of Manitoba Faculty of Medicine	(1916)	77.2
McGill University Faculty of Medicine	(1924)	84.4
Imperial University of St. Vladimir, Kief, Russia	(1913)*	80.8
FAILED		
Loyola University School of Medicine	(1925)	68.6
Univ. of Md. School of Med. and the Coll. of P. and S.	(1909)	50.3
University of Michigan Homeopathic Medical School	(1904)	69.2
Columbia Univ. College of P. and S.	(1926)	74
University of Buffalo School of Medicine	(1926)	65.8
University of Toronto Faculty of Medicine	(1909)	70.3
National University, Athens, Greece	(1923)	70.8
University of Saratov, Russia	(1917)*	67.2
University of Lausanne, Switzerland	(1923)*	74.4

Dr. Pinkham reports that 13 candidates were licensed by direct reciprocity, 6 were licensed by oral examination, March 9, 1927, and 1 candidate was granted a certificate on the basis of his credentials. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
University of Arkansas School of Medicine	(1912)	Arkansas
American Medical Missionary College, Chicago	(1910)	Michigan
Chicago College of Med. and Surgery	(1916) Illinois (1916)	Nebraska
Northwestern University Medical School	(1913)	Illinois
Rush Medical College	(1894) (1898)	Illinois
Keokuk College of Physicians and Surgeons, Iowa	(1896)	Illinois
University of Kansas School of Medicine	(1921)	Kansas
Detroit College of Medicine	(1895)	Michigan
University of Michigan Medical School	(1880)	Illinois

Barnes Medical College, St. Louis	(1903)	Kansas
St. Louis University School of Medicine	(1925)	Missouri
Columbia Univ. College of P. and S.	(1905)	Connecticut
Syracuse University College of Medicine	(1905)	New York
University and Bellevue Hospital Medical College	(1924)	New York
University of Cincinnati College of Medicine	(1917)	Ohio
Jefferson Med. Coll. of Phila.	(1901)	Pennsylvania; (1908) Utah

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
State University of Iowa College of Medicine		(1907)	U. S. Navy

* Verification of graduation in process.

Book Notices

THE NEW PHYSICAL EDUCATION. A Program of Naturalized Activities for Education Toward Citizenship. By Thomas Denison Wood, A.M., M.D., Professor of Physical Education, Teachers College, Columbia University, and Rosalind Frances Cassidy, A.M., Professor of Physical Education, Mills College. Cloth. Price, $2.40. Pp. 457. New York: Macmillan Company, 1927.

This furnishes teachers of physical education with a codification of the principles and practices, including history, scientific basis, aims, content and methods in the field of physical education, and a text and guide in the natural program, which "has now had fifteen years of earnest, devoted, scientific research in the formulation, application and testing of theory and practice." The authors make a distinction between the natural program, which has its origin in the natural impulses and instincts of the human being, and the naturalized program of physical education, which gives recognition to and makes provision for modifications, adoptions and additions arising from racial, national, community, vocational, avocational and individual needs in our present civilization. The apparent interchangeability of the terms "natural" and "naturalized" is not a little confusing, although careful study seems to indicate that "naturalized" is the more comprehensive term. As a fundamental objective, the demand is made for a rational and practical program which will develop social and moral qualities in the individual, at the same time correlating physical exercises and activities with other school subjects. It is pointed out that to accomplish this end the future must provide a new type of teacher, one not merely motor minded but also intellectually equal to teachers in other branches. Attention is directed to the necessity for sanitary environment, proper equipment and planning of classrooms and adequate facilities for personal cleanliness as essential contributory factors without which the biologic objectives cannot be attained. The classified list of source material, the bibliography and the suggestions on the use of the silhouettograph deserve favorable comment. Although there seems to be a certain amount of repetition, the book contains a wealth of material for the energetic and conscientious teacher of physical education.

LEHRBUCH DER SPEZIELLEN PATHOLOGIE UND THERAPIE DER INNEREN KRANKHEITEN. Für studierende und Aerzte. I. Band. Von Professor Dr. Med. Adolf Strümpell. Twenty-Sixth edition by Professor Dr. Med. et Phil. Carly Seyfarth. Paper. Price, 25 marks. Pp. 870, with 170 illustrations. Leipsic: F. C. W. Vogel, 1927.

Use of the more common terms and absence of the involved sentences characteristic of much German medical literature have resulted in the choice of this classic work with others by generations of medical students endeavoring to acquire a reading knowledge of German. More than a hundred thousand copies in German have appeared since it was first published forty-four years ago. It has been translated into English, French, Spanish, Italian, modern Greek, Turkish and Japanese, and the last translation into Russian was "pirated" from the one just preceding this, and published this year. In one year, two editions appeared. As a rule, new editions have been issued every one or two years. There has been only one four year period during which but one new edition was published. It was Strümpell's effort to keep the work modern in all essentials. In the four editions since 1922 Seyfarth collaborated in this endeavor, and with the death of Strümpell in 1925 this task has fallen to Seyfarth. For the twenty-fifth edition, issued last year, the portions dealing with bubonic plague, bronchial carcinoma, diseases of the myocardium, periarteritis nodosa, diabetes, diseases of the blood, and diseases of the pancreas were rewritten. In this volume the chapters are those devoted to scarlatina, acute poliomyelitis, epidemic encephalitis, singultus epidemica, cardiac arrhythmia, hypertension and duodenal ulcer. Revisions such as these from year to year indicate how the work has maintained the favor it has enjoyed for nearly half a century. The new format and more modern type throughout add greatly to the pleasure of reading. Conservatism and the judicious allotment of space are conspicuous. Work of American investigators on acute poliomyelitis and scarlatina has well merited notice. There is no mention of recent efforts to demonstrate the bacteriologic cause of measles. The cause of influenza remains *Bacillus influenzae*, and *Bacterium pneumosintes* is not mentioned. Unmentioned also are granuloma inguinale, tropical sloughing phagedena, coccidioidal granuloma, blastomycosis and the immune-serum treatment of erysipelas. One looks in vain for rhinoscleroma, which seems peculiar, since it has always been more prevalent in south Europe than elsewhere. But captious comments are altogether out of place in view of the long approval Strümpell's Practice has enjoyed and which the succeeding editions are apparently destined to retain.

MANUAL OF VETERINARY BACTERIOLOGY. By Raymond A. Kelser, D.V.M., Ph.D., Captain, Veterinary Corps, United States Army. Cloth. Price, $5.50. Pp. 525, with 87 illustrations. Baltimore: Williams & Wilkins Company, 1927.

This is a well printed and fairly well arranged textbook for the veterinarian. The author adopts the system of nomenclature given in Bergey's Manual. The section on Protozoa is written by Professor Haughwout of Manila. The book contains the usual material on methods, species descriptions, infection and immunity. A few omissions of topics important to the veterinarian may be noted, such as the lack of reference to "heartwater," or to *Vibrio fetus* described by Theobald Smith in 1918, although the book in the main seems modern. In the discussion of bovine streptococci (page 127), however, no mention is made of the important work of Brown, Frost and Shaw on these organisms. The discussion of pasteurization (page 491) is quite inadequate. The style is clear, but somewhat wearisome from the reiteration of stereotyped expressions. Occasional infelicities in sentence structure occur, as for example (page 171): "such species is of interest . . . being given considerable mention in differential considerations." In general the book undoubtedly will be found useful by those for whom it is intended.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 2. Band IV. Cholera asiatica. Von Prof. Dr. W. Kolle, und Dr. R. Prigge. Choleraimmunität und Choleraschutzimfung. Von Prof. Dr. H. Hetsch. Third edition. Paper. Price, 13.20 marks. Pp. 178, with 31 illustrations. Jena: Gustav Fischer, 1927.

In the new edition of this standard German treatise on pathogenic micro-organisms, formerly edited by Kolle and Wassermann but now by Kolle, Kraus and Uhlenhuth, the basis of most of the articles will undoubtedly be the material printed in the second edition. It is therefore of interest to note in what respect the third edition departs from the second. The monograph on Asiatic cholera is now at hand and is still issued by Kolle as senior editor, the junior author in this edition being Prigge in place of Schürmann. Although portions of the earlier article are printed in small type, and although some omissions have been made, the text is expanded by about one fourth or some twenty-five pages. One new figure is added, showing the geographic relations of cholera in the period 1911-1926. The revision of this article is very thorough and ranges from the correction of grammatical errors and minor changes in sentence structure to the insertion of many pages of new material. The bibliography contains about 500 entries, nearly all of them articles that have appeared since 1911. The bibliography is much more satisfactory than in the earlier editions in that the page number is given. The revision seems highly satisfactory in what is omitted, what is changed and what is added. The same may

be said of the section on cholera immunity and protective inoculation by Hetsch, which immediately follows the main monograph. Here again considerable expansion has occurred, the number of pages given to this topic being increased from thirty-eight to fifty-three. The bibliography of this section, as might be expected, is quite extensive and consists almost wholly of articles printed since 1911. Among many interesting additions may be mentioned especially the full record of recent experience with protective inoculation, which covers eleven pages and utilizes the extensive information gained during the World War. Hetsch concludes that the method of protective inoculation properly applied is capable of reducing cholera morbidity in a notable degree. The use of sensitized vaccine (serovaccine) received favorable comment. Serum therapy, on the contrary, while holding out some hope of ultimate success, is considered not well grounded. Vaccine therapy, which is advocated by some investigators, finds little support.

CHEMICAL LABORATORY MANUAL. Prepared to Accompany Bogert's "Fundamentals of Chemistry." A Text-Book for Nurses and Other Students of Applied Science. By L. Jean Bogert, Ph.D., Research Chemist, Obstetrical Department, Henry Ford Hospital. Cloth. Price, $1.50 net. Pp. 142, with 23 illustrations. Philadelphia: W. B. Saunders Company, 1927.

This brief manual is planned to accompany the author's more extensive book on the fundamentals of chemistry. It contains a number of simple experiments given in direct form and so arranged that the pupil may write in the solutions of the experiments after completing them. The book seems to be ideally adapted for the education of the nurse, the purpose for which it is specifically prepared.

NORMAL MIDWIFERY FOR MIDWIVES AND NURSES. By G. W. Theobald, B.A., M.D., Professor of Obstetrics and Gynaecology in the Chulalankarana University, Bangkok. Cloth. Price, $3.15. Pp. 258, with 58 illustrations. London: Oxford University Press, 1927.

In the United States, midwives are dwindling in number and the profession is gradually, but slowly, disappearing. Further, the remaining midwives read English with difficulty. Therefore this small volume will find little sale over here. If intended for Britain, one would have to conclude from its perusal that obstetric practice there is on a low level. In America, obstetricians are trying to raise even normal obstetrics to the same level of importance and dignity as surgery. In this book the tendency is in the opposite direction, and the impression the reader cannot escape is that the practice of normal obstetrics is degrading and fit for midwives, nurses and doctors. Only the 5 per cent of abnormal cases need hospital care or the services of an expert obstetrician. The author's slogan "back to nature" is most commendable, and for the people for whom his book is written it appears to be absolutely necessary. After reading his directions for the conduct of a normal case in the average poor home, one will even agree with him that women should be delivered by the "Garden of Eden" method—Eve's way—the patient being on her hands and knees, or in any position she chooses, and the attendant simply looking on, but doing nothing except to restrain a precipitate delivery. One hundred women were thus delivered in Leeds with success. The measure of success could not be satisfactorily learned from the reports.

The advice given and the methods prescribed apply only to midwifery practice among the poor and the poorest, and are for midwives of mentality only slightly above that of their patients. The book could not hold a place among the trained nurses of the British Isles or America. It would insult their intelligence. There is considerable inconsistency in the book. The description of the mechanism of labor could not be comprehended by women who would readily grasp most of the matter, and for whom the volume is intended. Nevertheless it is written with some show of erudition. The chapters are headed by quotations from the Bible and other classic literature, some of which are unintendedly humorous. Shiphrah and Puah, the Jewish midwives of Pharaoh's time, come in for belated recognition as the patron saints of midwifery, its Florence Nightingale, and Shakespeare, Milton and others are called on to grace chapters devoted to most intimate subjects.

Many of the purely obstetric teachings cannot be defended by modern science, but, fortunately, in the hands of the people who will follow the book little harm can be done, and the great amount of good advice given will far outweigh the evil. For example, rubber gloves cannot be sterilized, as the author says, by washing in soap and water and rinsing in 1 : 1,000 red mercuric iodide. Bacteria remain in the scratches, holes and patches, and they may even resist the autoclave; but certainly one will agree with the author that gloves are far better than the naked hands of the midwife. While discussing the toxemias of pregnancy, he says that "purgation and starvation are the treatment for all the ailments of pregnancy." The opposite is true of hyperemesis, and many other fallacies could be cited; yet the book abounds with plain practical facts. When coming to the chapters devoted to the pathology of pregnancy, labor and the puerperium the reader will at once notice a more elevated tone. The subjects are treated scientifically and the complications are accorded the dignity they deserve, although the opinions expressed and treatment described are not all in accordance with modern teaching and practice. For midwives and nurses, however, they are excellent. All in all, the book is interesting and valuable. It will repay reading by the obstetrician. A few hours devoted to it will provide entertainment and some amusement, also considerable instruction. It gives the American reader an insight into the obstetric conditions that are to be found in a certain stratum of British society, and into the status of the midwife herself. Few American physicians would relish the transplantation of such conditions to this country.

BUCHANAN'S MANUAL OF ANATOMY INCLUDING EMBRYOLOGY. Edited by E. Barclay-Smith, J. E. Frazer, F.R.C.S., F. G. Parsons, F.R.C.S., and W. Wright, F.R.C.S. In Three Volumes. Fifth edition. Cloth. Price, $13 per set. Pp. 1702, with 810 illustrations. St. Louis: C. V. Mosby Company, 1927.

The earlier editions of this book constituted a dissecting manual comprising directions for dissecting and a descriptive account of the structures dissected in each region. In this edition the directions for dissection are omitted. The book in its present form is essentially a regional descriptive anatomy. The first four hundred pages, however, are devoted to embryology and osteology. Many of the illustrations have been especially prepared. The editors are surgeons in the London Hospital, and the book would probably constitute an excellent guide for students preparing to take examinations in anatomy for the fellowship in the Royal College of Surgeons of England. American students would probably find the less expensive and excellent systematic textbooks of anatomy more satisfactory for their use, since their objective is not the preparation for a specific examination, but rather the acquisition of familiarity with the various systems, and an understanding of the way in which each system (nervous, vascular and so on) performs its function in the living body.

Physicians who wish to review the regional anatomy of a definite part of the body will doubtless derive much help from this regional textbook, especially if its use is supplemented by that of one of the better atlases.

DIE CHIRURGISCHE BEHANDLUNG DER LUNGENTUBERKULOSE. Erfahrungen und kritische Betrachtungen. Von Dr. A. Bruner, Oberarzt an der chirurgischen Universitäts-Klinik, München, und Dr. G. Baer, Oberarzt der Fürsorgestelle für Lungenkranke, München. Paper. Price, 3.60 marks. Pp. 65, with 13 illustrations. Berlin: Julius Springer, 1926.

This small monograph on the surgical treatment of tuberculosis of the lungs is a joint contribution by Bruner, the head of the university surgical clinic at Munich, and by Baer, the head of the department dealing with lung diseases, thus presenting the subject from both a surgical and a medical point of view. The authors realize that each case of tuberculosis of the lung must be considered separately so far as the plan of treatment is concerned, and they have attempted to summarize our present knowledge of the surgical management of these cases and the particular indications for the various types of surgical treatment. This constitutes an important borderline subject between medical and surgical treatment of tuberculosis, and it is precisely this that is

analyzed in this contribution. The extensive knowledge and experience of the two authors is well mirrored in this practical, concisely written exposition of the subject. The authors point out that the results of artificial pneumothorax compared with those following operative intervention show that the results of operative treatment are not inferior. Statistics presented show that, of 500 patients treated over a period of fourteen years by means of pneumothorax, 40 per cent were able to work; 12.8 per cent were not able to be treated by this method on account of the presence of adhesions; 36 per cent were rendered free from bacteria; more than 50 per cent of those treated by means of pneumothorax died. On the other hand, from two to seven years after thoracoplastic operations, 44.9 per cent of sixty-nine patients were able to work, 42.1 per cent died of tuberculosis, and 2.9 per cent died of other diseases. They believe that in the hands of capable surgeons there is no essential difference in the danger of the two methods. They point out that the essential basis for the choice of treatment lies in the proper selection of cases and that this is often difficult, and at other times it is extremely simple to make a proper selection. The assumption that every patient with extensive unilateral tuberculosis should be submitted to pneumothorax, and if adhesions are found should then be submitted to thoracoplasty, is a mistake. It cannot be too strongly emphasized that these two procedures are not therapeutically equivalent. While it is true that in certain cases one may equally well select the one or the other, experience has taught that there are certain forms of tuberculosis of the lung in which pneumothorax unquestionably should be instituted rather than thoracoplasty, while in other cases operation alone will give any real prospect of cure. This monograph is given over to a careful study of these questions. The first half is the work of Bruner and discusses the nature and mechanical efficiency of the various procedures; the indications and contraindications of the individual procedures; the results of the operative treatment of tuberculosis of the lung, and the surgical treatment of exudates following pneumothorax. The second half is contributed by Baer, who discusses the problem of pneumothorax; complications following pneumothorax and their treatment; the use of pneumothorax in children, and the surgical treatment by means of thoracoplasty and other methods. The volume ends with a bibliography covering the contributions of those authors quoted in the text. The little book is extremely well written and carefully compiled, and presents a wealth of information which will be of interest to all who have to do with the care of patients suffering from tuberculosis of the lung.

PRACTICAL GASTROSCOPY. By Jean Rachet, M.D., Assistant to the Hôpital St. Antoine, Paris. Authorized translation by Fred F. Imianitoff, D.S.C., B.A., M.R.C.S., Assistant to the Gynecological Research Department, Institute of Anatomy, Brussels. Cloth. Price, $5.50. Pp. 148, with 60 illustrations. New York: William Wood & Company, 1927.

Renewed attempts are being constantly made to bring gastroscopy into vogue. This one emanates from France and seems to furnish a bigger ray of hope for its ultimate usefulness. The author feels that it is indicated in difficult cases when other methods of investigation do not suffice to settle the diagnosis. It should never be employed in the presence of acute esophageal inflammation, ulceration, stenosis due to carcinoma, esophageal varices such as occur in cirrhosis of the liver, or when recent gastric hemorrhage has occurred. Gastroscopy should be done on the empty stomach, under local anesthesia, with a wire guide and the patient preferably in the left lateral position. Other positions are employed, but less advantageously. Insufflation of the stomach during the examination helps to bring otherwise inaccessible portions of the stomach into view. The author believes that increased facility in the diagnosis of recent ulcer warrants the use of gastroscopy. In carcinoma, the value is less because the condition is advanced at the time the patient begins to have symptoms. The value of gastroscopy in the diagnosis of gastritis seems to be an insufficient reason for its employment. Case reports, citations of experimental observations on dogs and cadavers, several illustrations and an exhaustive bibliography are furnished.

LA TUBERCULOSE. Par le Dr. Edouard Rist, médecin de l'Hôpital Laënnec. Boards. Price, 19 francs. Pp. 356, with 31 illustrations. Paris: Armand Colin, 1927.

This little volume presents in chronological order the main facts concerning tuberculosis. The author has shown rare good judgment in stressing the important and omitting the nonessential. He is well qualified for his task because of his intimate knowledge of the history and literature of the disease, as well as its laboratory, pathologic, clinical and public health aspects. Moreover, he has a style which by its clearness renders meanings plain and by its charm makes reading a pleasure. He is fairminded in his critical comments. His judicial attitude is never lost unless it be in the chapter on artificial pneumothorax, where there is just a hint of the advocate.

Among the principal features concerned may be mentioned his emphasis on the roentgen ray as a means of diagnosis, his condemnation of drug therapy, his advocacy of treatment by artificial pneumothorax, his consideration of the public health aspects of the disease, and the fight for its suppression. It is the best book of the kind with which we are familiar. It can be read with profit by the undergraduate and the general practitioner. It is purposely so written as to be understandable by the intelligent layman. It may be especially commended to the large number who call themselves specialists in tuberculosis; no one would be more benefited than they by its careful perusal. The book is well worth translation into English.

PERSONAL HYGIENE FOR WOMEN. By Clelia Duel Mosher, M.A., M.D., Associate Professor of Personal Hygiene and Medical Adviser of Women, Stanford University. Cloth. Price, $1.50. Pp. 97. Stanford University: Stanford University Press, 1927.

Dr. Mosher has issued, through a university press, a revision of her excellent volume on hygiene for women. Her experience in the care of college women is reflected in this book, which is not only a guide to a proper personal hygiene but also an inspiration to the woman who wants to live a useful life. Perhaps the text of her volume is in the sentence "Under normal conditions, there should be no more women suffering with disorders of the generative organs than with disturbances of the digestion, respiration or the heart." The volume concerns not only the hygiene of sex but also the dietary and mental hygiene, the questions associated with healthful beauty, and similar subjects. The book is brief, its contents are easy to assimilate and, in general, it is a safe volume to place in the hands of any woman or growing girl.

ALLGEMEINE UND EXPERIMENTELLE PATHOLOGIE NACH VORLESUNGEN FÜR STUDIERENDE UND AERZTE. Von Dr. Hermann Pfeiffer, o. ö. Professor und Vorstand der Lehrkanzel für allgemeine und experimentelle Pathologie an der Universität Graz. Second edition. Paper. Price, 22.50 marks. Pp. 649, with 64 illustrations. Berlin: Urban & Schwarzenberg, 1927.

From the title one might expect that a considerable portion of this work is devoted to explaining how experimentation has assisted in explaining the origin and results of disease. But such is not the case. Nor is it apparent that one aim in its writing has been suggestions for the study of disease experimentally. It is essentially a treatise on pathologic physiology with some reference to the underlying chemical changes. An attempt is made to consider all the causes, extrinsic and intrinsic, responsible for disease. As a result the discussion of some, animal parasites and filtrable viruses, for example, is the scanty minimum sufficient to secure a measure of completeness. Nor is the field covered limited to general pathology, for diseases of the blood, respiratory organs and circulatory organs are discussed separately, likewise those of the hypophysis cerebri, thymus, suprarenal glands, and other organs of internal secretion. Many errors and omissions in the first edition are corrected, about fifty pages added in revising all parts, modern accomplishments included and old views expurgated. The chapters dealing with nutrition, internal secretions and experimental tumor research are completely rewritten. Many references to recent important contributions have been added to the interspersed bibliographies. Retention of the awkward longer colloquial

German terms, deplored in the review of the first edition (THE JOURNAL, July 19, 1924), still constitutes an obstacle to any considerable use of this book among students and physicians whose German has been acquired. There is no good reason for the use of Ueberempfindlichkeit for anaphylaxis, Hirnanhange, for hypophysis, Briesedrüse for thymus gland, Gewebswassersucht for edema or Zuckerharnruhr for diabetes mellitus. The illustrations are mostly borrowed from other works, but the choice is excellent. The heavy rings bordering circular figures are unsightly. Nevertheless students and physicians will find this an enjoyable adjuvant to the usual run of textbooks on general pathology, which are, as a rule, largely devoted to morbid anatomy and morbid histology.

Medicolegal

Malice Required to Make Producing Abortion Murder

(Ex parte Vick (Texas), 292 S. W. R. 889)

The Court of Criminal Appeals of Texas, in reversing a judgment in this habeas corpus proceeding, in which the appellant, who was charged with murder, was denied bail, says that the burden was on the state to introduce evidence which would justify the denial of bail. To meet that requirement in the present instance it would be necessary, by competent proof, to establish the fact that the appellant was guilty of the offense of abortion as defined in article 1191 of the penal code of 1925.

Abortion is committed by one who shall designedly administer or cause to be administered to a pregnant woman any drug or shall use toward her any violence or means externally or internally applied to procure an abortion. (See article 1191.) In article 1194 it is declared that if death of the mother is occasioned by an abortion so produced or by an attempt to effect the same, it is murder. In article 1196 it is said: "Nothing in this chapter applies to an abortion procured or attempted by medical advice for the purpose of saving the life of the mother." It is not meant by article 1194 that the death attempted or produced by an unlawful abortion is necessarily murder. To render the offender guilty of murder the elements of that offense must occur with the criminal act. In its present definition, murder is a voluntary homicide committed with malice aforethought, and, in the absence of that element, the offense would not be murder.

As the facts were developed in the present case, the appellant was a physician regularly called to attend a woman who was sick (and who afterward died). He gave her medicine, and, in accord with the state's theory, he performed an operation which resulted in an abortion. He had a right to produce an abortion by the means mentioned if his acts were directed toward saving the life of the mother of the child. This is statutory. He was not guilty of murder unless the acts attempting or producing the abortion were done with malice aforethought. Without a discussion of the evidence in detail, the opinion is expressed that it was not sufficient to support the action of the court in denying bail; and bail is granted in the sum of $2,500.

No Divorce for Cruelty Resulting from Diseased Mind

(Kunz v. Kunz (Minn.), 213 N. W. R. 906)

The Supreme Court of Minnesota, in reversing a judgment of divorce rendered for the plaintiff husband on the ground of cruel and inhuman treatment, says that the finding of cruel and inhuman treatment of the plaintiff by the defendant would have ample support in the evidence were it not plain that all the defendant's conduct, which furnished the basis for the finding against her, was but the symptom and result of a disordered mind. It was a typical case of delusional insanity. From its beginning some five years ago, the disorder seemed to have been progressive, and the situation became so unbearable for the plaintiff that he had to leave the family home and establish a separate residence. There was no suggestion that he had not done his full duty in providing solicitous care and maintenance of his mentally sick wife and their four children. She and they occupied the family home, and he maintained it for them. But however serious, from his standpoint, the situation might be, to whatever extent he had been unjustly accused and otherwise harassed, he was not entitled to a divorce. That was for the simple reason that his wife's conduct, of which he complained, was explainable on no other hypothesis than that of aberration. Insanity itself not being a ground for divorce (under the Minnesota statute), its symptoms and results cannot have that effect. Insanity is a mental disease, and disease of the mind no more than illness of the body is recognized by the law of Minnesota as a ground for divorce. "If insanity itself after marriage is no cause for divorce, nothing which is a consequence of it can be." Any change of the law in that respect must come from the legislature rather than the courts. In *Longbotham* v. *Longbotham*, 119 Minn. 139, 137 N. W. 387, this court said:

> Insanity is a defense to an action for divorce on the ground of cruel and inhuman treatment, if at the time the alleged acts of cruelty were committed the defendant was laboring under such a defect of reason as not to know the nature of his acts or that they were wrong.

The test so adopted is the statutory one for mental responsibility for criminal acts. Therefore, if it is applicable outside the criminal law and particularly in divorce actions, the test cannot be narrowed by construction. In this case the argument for the plaintiff that the defendant must have known the quality of her acts and that they were wrong was not sustained by the record. A procedural difficulty arose from the absence of any finding on the question of insanity, but this court considers that the evidence compelled the finding that the defendant's conduct was due wholly to her mental disorder.

Evidence of Nature of Injuries—Privilege Not Waived

(Monpleasure v. American Car & Foundry Co. (Mo.), 293 S. W. R. 84)

The St. Louis (Mo.) Court of Appeals, in affirming a judgment for $1,000 damages in favor of the plaintiff for personal injuries alleged to have been caused by the negligence of the defendant, says that it was true that the plaintiff's testimony as to the nature and extent of his injuries was wholly uncorroborated, while the defendant introduced three physicians, who testified that the plaintiff's physical condition could not have been produced by injury. The defendant's evidence was that the condition of the plaintiff's back was due to hypertrophic spondylitis or chronic rheumatism, and that his bladder trouble was the result of the enlargement of the prostate gland, neither of which conditions arose from trauma.

There can be no doubt that it was incumbent on the plaintiff to show a direct causal connection between the defendant's negligent act and the injurious consequences which the plaintiff claimed were the results of such act. Consequences which were only speculative, contingent or merely possible could not be considered by the jury. But in carrying his burden of proof, the court cannot say, under the facts of this case, that expert medical testimony was indispensable to the plaintiff's right to recover damages. As a matter of fact, the jury would have been no more obligated to believe the testimony of an expert than that of any other witness.

This court concedes that a lay witness will not be permitted to attempt a medical diagnosis. However, even such a witness may express an opinion as to a person's health, when all the facts on which such opinion is based are given. The fact that the witness is not an expert may weaken the probative force of his testimony, but it does not render it wholly incompetent. Of course, there are cases in which the subject of the inquiry is a matter exclusively of expert knowledge. There are other cases, however, in which the facts are within the comprehension of all reasonable men of ordinary intelligence. In the case at bar this court is clearly of the opinion that, in view of the undisputed testimony that the plaintiff's body was caught and crushed, and fortified by the defendant's solemn admission in its answer that the plaintiff had sustained "some injury" thereby, the jury was entitled to indulge in the conclusion, as a reasonable inference from all the facts and circumstances in evidence, that the plaintiff's physical condition as narrated by him was proximately caused by the

casualty that occurred in the defendant's plant. Furthermore, the defendant's own medical experts admitted that the plaintiff's physical condition, although in their opinion arising from disease or ailment, could have been aggravated by the injury he received, in which event the defendant was liable for such aggravation as the jury might have found was occasioned by the defendant's negligence. The court concludes, therefore, that a demurrer to the evidence was correctly overruled.

An objection was sustained to the competence of a physician as a witness because he had treated the plaintiff in a professional capacity and the information which he had gained had been for the purpose of enabling him to prescribe for the plaintiff as a patient; but the defendant insisted that, the plaintiff having testified to the treatment received, he must be held to have waived the right to invoke the privilege on which the objection to the physician's testimony as a witness for the defendant was predicated. The fact that the privilege may be waived by the patient is well recognized. However, testimony, to operate as a waiver, must be voluntary. The only evidence offered by the plaintiff with respect to his relations with the physician in question was that brought out by cross-examination. Such testimony is not regarded in law as voluntary, and, accordingly, the plaintiff might not be held thereby to have waived his right to object to the competence of the physician as a witness. Counsel for the defendant, having seen fit to inquire into the matter as they did, were bound by the plaintiff's answers, and could not afterward maintain that the plaintiff, even if he had answered wholly without objection, had voluntarily waived his privilege.

During the argument of one of plaintiff's counsel to the jury, he said: "He (plaintiff) has no money to bring into court these high-priced doctors." That the remark was improper is self-evident. However, the course to be pursued when improper argument has been made rests largely within the discretion of the trial court, and it is held that, no abuse of the court's discretion appearing, there was no error, after it had sustained an objection to the improper statement of counsel, in its refusal to discharge the jury in addition thereto.

Physician's Contract with Railroad Company Construed

(Missouri & N. A. R. Co. v. Fowler et al. (Ark.), 293 S. W. R. 47)

The Supreme Court of Arkansas says that this action was begun by a bank to recover on a promissory note transferred to it by a physician who had received it for services rendered to an injured employee of the railroad company, which by a cross-complaint was made a party to the action. This brought up for construction an agreement made by the physician having accepted the conditions of a letter written to him by the vice president and general manager of the railroad company which stated that an annual pass good over the railroad between stations in Arkansas was therewith handed the physician, having been issued in his favor, as it stated, "account local surgeon, with the understanding that in accepting same you agree, during the period it remains in effect, to render free medical attention to all patrons and employees of this company when called upon. Such medical attention to be rendered to patrons and employees when injury has been sustained by them on account of negligence of this company or its employees and when this company is legally liable for such injury. It being directly understood, however, that nothing in this agreement nor the acceptance by you of pass referred to, authorizes you to act as an official or representative of this company in any matters, medical or otherwise."

The employee treated in this instance had, while working in the company's shops, received a severe injury and was taken to the physician's office, where he was given first-aid treatment, after which he was removed to his home, where, at his and the company's joint request, he was treated for several months, during which time the physician performed two skilful and successful surgical operations. Then the employee made a settlement with the company for $236, executing a written release in which he stated that he accepted that amount "with understanding railway company pays medical and doctor bills due for injury." On the same date the physician, at the suggestion of the claim agent for the company, rendered a statement of his account for professional services in the sum of $362.50, payment of which was refused by the company for the reason that under its construction of the pass contract, such services were to be given free. The physician then demanded payment of the employee, and accepted the note sued on. The supreme court holds that a decree was right which was entered in favor of the bank against the physician and employee for the amount of the note and interest, and in favor of the employee of his cross-complaint against the company for the same sum, and which dismissed a cross-complaint of the company against the physician.

The principal question for consideration by the court was the proper construction to be placed on the written contract between the physician and the railroad company. The physician's construction of the contract was that under it he was to do office work in minor injuries, and give first-aid treatment to persons suffering injury at the company's shops, who would call at his office for treatment, but that if he went out to homes he would be entitled to make a charge therefor. The company, on the other hand, insisted that the contract made it obligatory on the physician to render not only medical attention, but surgical attention on such employees and patrons of the company as it might call on him to render. The supreme court does not agree with the company in this contention. In the first place, this was a contract written by the company and must be strictly construed against it. Nowhere in the contract was it provided that the physician should render any surgical attention to any employee or patron. Furthermore, the court does not think that it was in the contemplation of the parties when the contract was written by the company and accepted by the physician that he should be called on to render any extensive medical attention to the company's employees and patrons, but only such as might require first-aid treatment, or for temporary or minor complaints and injuries. This construction was borne out by the small consideration for the contract.

Again, the language of the contract stipulating that the physician could not act as an official or representative of the company in any matter, medical or otherwise, conclusively showed that he was not occupying the position of a general physician or surgeon for the company. Then, in the instrument executed by the employee, called a "general release," the company denied any liability, and the payment of only $236 somewhat strengthened the idea of nonliability, inasmuch as it was agreed that the employee had received a very painful, severe and dangerous injury from which he suffered several months. Since the medical attention was not required by contract to be rendered except in cases wherein the company was legally liable, it followed that if the company should require the services of a physician in nonliability cases, he would be entitled to compensation.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, November 24. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.
American Public Health Association, Cincinnati, Oct. 17-20. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.
American Society of Tropical Medicine, Boston, October 21-22. Dr. B. Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.
Association of American Medical Colleges, Montreal, October 24-26. Dr. F. C. Zapffe, 25 East Washington Street, Chicago, Secretary.
Inter-State Post Graduate Medical Association of North America, Kansas City, Mo., October 17-21. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.
New York and New England Association of Railway Surgeons, New York, Oct. 21-22. Dr. Horace H. LeSeur, 41 Jackson Street, Batavia, N. Y., Secretary.
Ohio Valley Medical Association, Evansville, Ind., November 9-10. Dr. J. F. Wynn, 712 South 4th Street, Evansville, Ind., Secretary.
Radiological Society of North America, New Orleans, November 28-December 2. Dr. Robert J. May, 5005 Euclid Avenue, Cleveland, Secretary.
Southern Medical Association, Memphis, Tenn., November 14-17. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Virginia, Medical Society of, Petersburg, Oct. 18-20. Miss Agnes V. Edwards, 104½ West Grace St., Richmond, Secretary.
Western Surgical Association, Omaha, December 8-9. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. M. Sciences, Philadelphia

174: 151-298 (Aug.) 1927

*Coccidioidal Granuloma: I. D. Riesman and F. E. Ahlfeldt, Philadelphia.—p. 151.
*Emptying of Gallbladder. R. A. Hamrick, Rochester, Minn.—p. 168.
Bacteremia Due to Bacillus Fecalis Alkaligenes: Case. W. S. Wyatt, Lexington, Ky.—p. 181.
*Specific Therapy of Pneumococcus Type II Pneumonia. H. S. Baldwin and D. R. Rhoades, New York.—p. 191.
*Ballooning of Left Lower Abdominal Quadrant Early Sign in Perforated Duodenal Ulcer. D. Stetten, New York.—p. 208.
*Atypical Acute Myeloid Leukemia with Unusual Pulmonary Manifestations. H. Joachim and L. Loewe, New York.—p. 215.
Cause and Prevention of Increasingly High Mortality in Acute Surgical Abdomen. J. O. Bower, Philadelphia.—p. 225.
Reaction of Normal Nasal Mucous Membrane. D. R. Heetderks, Rochester, Minn.—p. 231.
Essential Hypertension. A. R. Elliott, Chicago.—p. 244.
*Digitalis in Pneumonia. W. S. Burrage and P. D. White, Boston.—p. 260.

Coccidioidal Granuloma in Pennsylvania.—Riesman and Ahlfeldt report what is said to be the first case of coccidioidal granuloma reported in Pennsylvania. The patient was an American boy, aged 5 years, who had lived in the East all his life with the exception of a two months' visit to New Mexico. Eighty-seven cases already on record are summarized briefly.

Emptying of Gallbladder.—Hamrick made a roentgen-ray study of the normal emptying time of the gallbladder. He says: The gallbladder empties a portion of its contents into the duodenum with digestion. The contents pass to the duodenum through the cystic and common ducts. It is evident that the emptying of the gallbladder with digestion is intermittent. Periods of active emptying were usually short and could be definitely limited over a varying period. Emptying began within from ten to forty-five minutes after feeding and was interspaced with varying intervals in which there was none. From these studies contractions of the musculature of the gallbladder appear to be the main factor in the normal emptying, and intrinsic periodic contractions appear to be important features brought into play with digestion. There is ample evidence that the gallbladder does not tend to expel its contents during the fasting state. Respiratory movements as well as changes in external and intra-abdominal pressure have only a minor part, if any, in the normal emptying. The sphincter at the lower end of the common duct is possibly one of the factors concerned in the regulation of the flow of bile from the gallbladder, although its action is not necessary for the emptying of the gallbladder with digestion.

Specific Therapy of Pneumonia.—As a result of this investigation by Baldwin and Rhoades, it appears that the successful specific therapy of pneumococcus type II pneumonia is largely dependent on the use of a highly potent serum in large amounts early in the course of the disease. A serum of the potency of that used in this work is not at present widely available. Concentrated pneumococcus II immune serum derivatives may be very helpful if they can be administered in adequate amounts without causing severe chill reactions.

Early Sign in Perforated Duodenal Ulcer.—A definite ballooning of the left lower abdominal quadrant was noted by Stetten in a case of perforated duodenal ulcer. It is believed that this symptom is an early sign of an acute perforative lesion in the right hypochondrium which is usually a perforation of an ulcer of the duodenum, and that it is produced by the contraction of the right upper, right lower and left upper abdominal quadrants, which have become invaded and rigid, while the left lower quadrant is still uninvolved and relaxed.

Atypical Acute Myeloid Leukemia.—An initial difficulty in classifying the blood disorder reported by Joachim and Loewe was due to the absence of oxidase granules in the primordial cells, which were present in large numbers in the circulating blood. With the appearance of premyelocytes, the leukemic nature of the blood picture was evident. Thorough hematologic and histopathologic studies warrant the opinion that the case is one of myeloblastic leukemia with an atypical blood picture resulting from rapid myelopoiesis. The migratory pulmonary lesions, which dominated the clinical picture throughout the period of observation, were probably of embolic, infarctive nature. This impression was confirmed at necropsy. The apparent complete resolution of these lesions was demonstrated clinically and radiographically. The necropsy revealed a striking myelopoietic change throughout, particularly in the lungs, heart, liver, kidneys and skin.

Digitalis in Pneumonia.—The data presented by Burrage and White suggest that digitalis is of value in pneumonia when given in sufficient dosage; the cases, however, are inadequate in number to prove the matter.

American J. Pathology, Boston

3: 289-412 (July) 1927

*Osteosclerotic Anemia Secondary to Epidermoid Carcinoma. G. Y. Rusk and W. L. Miles, San Francisco.—p. 289.
*Pulmonary Blastomycosis: Similarity to Tuberculosis. E. M. Medlar, Madison, Wis.—p. 305.
*Reticulum of Lung: V. Similarity in Blastomycosis and Tuberculosis. W. S. Miller, Madison, Wis.—p. 315.
*Multiple Hemorrhagic Sarcoma of Kaposi. D. S. Meyers and V. C. Jacobson, Albany, N. Y.—p. 321.
*State of Glomerulus in Experimental Hypertrophy of Kidneys of Rabbits. O. Saphir, Cleveland.—p. 329.
Sympathicotropic Cells of Ovary and Testis. D. Brannan, Pittsburgh.—p. 343.
*Synoviomata. L. W. Smith, Boston.—p. 355.
Mitochondria: II. In Thyroid. D. P. Seecof, New York.—p. 365.
*Cytology of Molluscum Contagiosum. E. W. Goodpasture and H. King, Nashville, Tenn.—p. 385.
*Nuclear Changes of Ganglion Cells in Experimental Herpetic Encephalitis. E. W. Goodpasture, Nashville, Tenn.—p. 395.
Origin of Reticulin Fibrils. N. C. Foot, Cincinnati.—p. 401.

Epidermoid Carcinoma with Osteosclerotic Anemia.—Rusk and Miles report a case of epidermoid carcinoma probably arising in the skin over the left malar region and giving metastases to the lungs and to the skeletal system. These metastases came by way of the blood stream and, in the case of the bones, lodged first in the red marrow and then by extension involved the cortical bone and periosteum. The peculiar type of anemia produced is the result of widespread destruction of the marrow.

Pulmonary Blastomycosis.—Two cases of primary pulmonary blastomycosis are reported by Medlar. The identity of the gross and microscopic pathologic changes in fungus and tuberculous infections is emphasized. The necessity of bearing in mind the possibility of fungus infection as well as tuberculosis in the clinical and roentgen-ray study of pulmonary lesions is suggested.

Lung Reticulum in Blastomycosis and Tuberculosis.—Miller's study of the reticulum shows that its growth and transformation into collagenous tissue differ in no way in the tubercle of blastomycosis from that in the tubercle of tuberculosis. If the presence of the special organism is eliminated from the picture, the lesion is the same in the two infections. This leads to the conclusion that, though the organisms differ, the lesion they produce cannot be differentiated.

Multiple Hemorrhagic Sarcoma of Kaposi.—Meyers and Jacobson report a case of "multiple hemorrhagic sarcoma of Kaposi," in a man, aged 82, who had had the condition at least three years. The history and clinical observations are in agreement with most of the recorded cases. Careful histologic study of the lesions indicates that the condition is probably one of multiple hemangiomatosis with a fibrosarcomatous change in the stroma of many of the tumor nodules.

Glomerulus in Experimental Hypertrophy.—Saphir states that for twelve weeks after unilateral nephrectomy the remaining kidney shows an absolute and relative increase

in weight. After that interval, the relative weight of the kidney practically remains stationary. In hypertrophic kidneys the majority of the glomeruli are enlarged and the differences in size between the glomeruli of the peripheral and central portions of the cortex appear greater. No signs of new formation of glomeruli or tubules in young rabbits are seen. The enlargement of kidneys of rabbits in experimental hypertrophy is due in part to an hypertrophy of the glomeruli without an increase in their number. The hypertrophy of a kidney which followed the ligation of the ureter of the other kidney was no greater than that of the unilaterally nephrectomized animals. During the first three weeks of hypertrophy the kidneys show, first, a hyperemia of the capillaries and, later on, a marked cloudy swelling which probably reaches its maximum about three weeks after unilateral kidney extirpation. Later on, the changes disappear and the hypertrophic kidneys do not show degenerative changes. Hypertrophic kidneys do not show traces of fat.

Synovioma.—Three tumors of synovial membrane origin and presenting too many points in common, both clinically and histologically, to be regarded as coincidental, are presented by Smith as a type of tumor. Their histology, as based on their embryologic origin from mesothelium, is discussed, the type cell showing multipotential characteristics comparable to other mesothelial tumors. A review of the literature of the subject is presented.

Cytology of Molluscum Contagiosum.—The observation of Lipschütz that epithelial cells in the lesions of molluscum contagiosum contain myriads of minute bodies morphologically consistent with a filter-passing micro-organism has been confirmed by Goodpasture and King. These bodies are not derived from extruded nucleoli or from any formed cytoplasmic constituent. Mitochondria are neither involved in their formation nor destroyed by the changes in the cell associated with the presence of the minute bodies. The minute bodies develop about and later within cytoplasmic vacuoles which may be regarded as the cellular response to the presence of a living foreign body. The view is expressed that these elementary bodies of Lipschütz may be the virus and the etiologic agent of molluscum contagiosum.

Ganglion Cells in Experimental Herpetic Encephalitis.—Goodpasture asserts that intranuclear bodies, distinct from herpetic inclusions, may occur within ganglion cells of the central nervous system in the presence of an acute herpetic encephalitis. This substance may be myelin. Herpetic intranuclear inclusions typical in morphology occur in association with the new substance, and they appear to be specific for the virus, whatever other changes the nuclei may undergo. New substances with characteristic form and reactions may appear within injured nuclei in association with a virus, yet not have any morphologic relation to the virus itself.

American Journal of Public Health, Albany, N. Y.

17: 777-885 (Aug.) 1927

*Montreal Typhoid Fever Situation. Report of Special Board of U. S. Public Health Service.—p. 783.
Public Health, Public Business. W. H. Peters, Cincinnati.—p. 793.
Vital Statistics: Constitutional, Statutory and Administrative Aspects. W. T. Fales, Montgomery, Ala.; E. W. Kopf and J. A. Tobey, New York.—p. 799.
Sodium Aluminate as Adjunct to Alum for Coagulation of Public Water Supplies.—S. T. Powell, Baltimore.—p. 804.
Public Health Work in Flood Area. I. V. Hiscock, New Haven, Conn. —p. 810.
*Agglutinins in Human Serums for Scarlet Fever Streptococci. L. Baumgartner, Lawrence, Kan.—p. 814.
*Stereoscopic Roentgen-Ray Examination of Sandstone Quarry Workers. D. J. Kindel and E. R. Hayhurst, Columbus, Ohio.—p. 818.
School Nursing Procedure. B. Short, New York.—p. 823.

Typhoid Situation in Montreal.—It is concluded that the typhoid epidemic in Montreal since Feb. 15, 1927, was beyond reasonable doubt caused by infection distributed in the output of milk from the plant of the Montreal Dairy Company, Ltd., in that city. Though contributory infection may have been introduced into the milk at one or more of the four stations or within the plant in Montreal, the preponderance of evidence is that the bulk of the infection was introduced into the milk at the farm sources and was enabled to multiply before the milk reached the city plant. The preponderance of evidence is that a very considerable proportion of the infected milk was passed through and distributed from the plant without being subjected to pasteurization treatment. A large proportion of the milk which at the beginning of the epidemic was distributed through the plant of the Montreal Dairy Company, Ltd., and which is now presumably being distributed through other plants or channels to consumers in Montreal and elsewhere, is not now being officially controlled in such manner as to preclude its possible menace to the public health. Montreal is not yet a comparatively safe city for visitors who are likely to be susceptible to typhoid infection. Milk and milk products derived from sources within the general vicinity of Montreal do not appear to be produced or processed under satisfactory sanitary conditions or under official health supervision approaching adequacy. It is recommended that state and local health officials and other persons concerned be advised that Montreal is not now, from a typhoid standpoint, a comparatively safe city for tourists from the United States to visit and is not likely to be such for months yet to come, unless local health service in Montreal and vicinity promptly is made much more nearly adequate than it now is.

Agglutinins for Scarlet Fever Streptococci.—Personal observation has convinced Baumgartner that agglutinins for streptococci isolated from acute cases of scarlet fever are found in the blood of apparently healthy and normal persons. Of the 71.4 per cent whose serums did not agglutinate the scarlet fever streptococci, 77.6 per cent had not had the disease. Of the serums from 183 persons, 28.6 per cent agglutinated scarlet fever streptococci. Of the positive agglutinating serums, 296 per cent came from persons who had had scarlet fever previously. Of those who had had scarlet fever, 33.3 per cent had agglutinating bodies for scarlet fever streptococci in their blood. Counting only 3 and 4 plus agglutination reactions, 8.2 per cent, and counting only 4 plus reactions, 2 per cent, of the persons whose serums agglutinated the scarlet fever streptococci had not had scarlet fever. Fifty per cent of this group had a history of tonsillitis and tonsillectomies. Maximum agglutination occurred in the serum dlution 1 to 80. Agglutination seemed to be specific if judged by the results of agglutination tests with three strains of streptococci of nonscarlatinal origin.

Incidence of Silicosis in Quarrymen.—A positive diagnosis of silicosis was made in 30 per cent of the 919 men examined by Kindel and Hayhurst with the roentgen ray. Two per cent showed definite evidences of a tuberculous process. In this study the inhalation of silica dust among men on the job is apparently not productive of a larger than normal incidence of tuberculosis. The grindstone turning department presents the greatest hazard, twenty-one of twenty-seven men, or 77 per cent, showing evidences of silicosis. Although silicosis may appear rarely after a short exposure to dust (from one to three years), the great majority of cases appear after an exposure of ten or more years. Silicosis, in this investigation, has shown itself as a disease of slow inception, slow progress, and with hardly more than the usual relation to tuberculosis which is to be found among industrial employees generally when examined on the job.

Annals of Surgery, Philadelphia

86: 161-320 (Aug.) 1927

Future of Thoracic Surgery in America. W. Meyer, New York.—p. 161.
Relation of Immunity to Experimental Production of Abscess of Lung. J. W. Holloway, S. A. Schlueter and E. C. Cutler, Cleveland.—p. 165.
*Treatment of Pulmonary Suppuration. E. A. Graham, St. Louis.—p. 174.
*Mechanical Principles of Operative Treatment of Pulmonary Tuberculosis. H. Lilienthal, New York.—p. 182.
Operations as Aids in Treatment of Pleuropulmonary Tuberculosis. J. L. Yates, Milwaukee.—p. 200.
Treatment of Chronic Suppurative Bronchiectasis as Limited to One Lobe of Lung. W. Whittemore, Boston.—p. 219.
Surgical Problems Attending Operation of Extrapleural Thoracoplasty. A. A. Law, Minneapolis.—p. 227.
*Intrathoracic Tumors. G. J. Heuer, Cincinnati.—p. 229.
Thoracoperitoneal Operation for Hernia of Diaphragm. P. E. Truesdale, Fall River, Mass.—p. 238.
*Changing Status of Anesthetics. G. P. Müller, Philadelphia.—p. 244.
Present Status of Anociation. G. W. Crile, Cleveland.—p. 251.
*Ethylene as Anesthetic for General Surgery. H. Cabot and H. K. Ransom, Ann Arbor, Mich.—p. 255.
*Blood Changes Under Ethylene Anesthesia. H. H. Trout, Roanoke, Va. —p. 260.

Anesthesia in Genito-Urinary Operations. W. E. Lower, Cleveland.—p. 268.
*Anesthetic Preferences of American Surgeons. E. M. Stanton, Schenectady, N. Y.—p. 273.
*Effect of Glycosuria in Surgery. H. A. Bruce, F. Hipwell and J. W. Rush, Toronto.—p. 278.
*Results of Surgical Treatment of Carcinoma of Stomach. F. B. St. John, New York.—p. 283.
Benign Stricture of Bile Ducts. R. T. Miller, Jr., Baltimore.—p. 296.
Fractures of External Condyle of Humerus with Rotation. M. K. Smith, New York.—p. 304.
Fracture of Fifth Metatarsal Bone with Reference to Delayed Union. L. Carp, New York.—p. 308.

Treatment of Pulmonary Suppuration.—A series of forty-five cases in which the operation of cautery pneumonectomy had been carried out is discussed by Graham, and it is shown that in thirty-one cases there is freedom from symptoms. The author stresses the fact that, because of the variety of forms of pulmonary suppuration, no particular kind of treatment will be applicable to all cases.

Surgery of Pulmonary Tuberculosis.—Rest and drainage are regarded by Lilienthal as being the two important mechanical objects of the surgery of pulmonary phthisis. Rest may be temporary and in varying degrees, or it may be permanent in varying degrees even to the complete abolishment of lung function. Operations on the thorax itself deal with rest and with forms of drainage, either by way of the air passages and mouth or out into the world. The obliteration of pulmonary cavities or of diseased areas of the pleural sac are described.

Study of Intrathoracic Tumors.—Of the thirty-one true intrathoracic tumors seen by Heuer, only eleven, or 35 per cent, were possibly operable. The mortality in those subjected to radical operation was 10 per cent. Heuer believes that with earlier diagnosis and earlier operative treatment, the surgery of intrathoracic tumors may be greatly improved. Among nine lung tumors were three primary carcinomas and four primary sarcomas.

Choice of Anesthesia.—Müller prefers inhalation anesthesia, and the nitrous oxide-ethylene-ether local sequence is his choice, the ether being omitted whenever possible. All patients receive morphine and atropine one-half hour before operation, unless contraindicated.

Ethylene Anesthesia.—Cabot and Ransom summarize their experience with ethylene as an anesthetic as follows: As an anesthetic it has all the advantages of nitrous oxide and oxygen and also gives greater relaxation and avoids objectionable cyanosis. It appears to be remarkably free from danger except that possibly resulting from explosions. It will not give complete muscular relaxation particularly for operations in the upper abdomen, and if this is required, it must be combined with local or regional anesthesia, or another anesthetic selected. In their practice it has practically pushed nitrous oxide from the field and will, they believe, for ordinary surgical practice, supersede it. It is not an anesthetic which can be employed except where trained anesthetists are on hand and a rather cumbersome apparatus is available. It is not likely, therefore, to supersede ether or chloroform for use outside hospitals, but for general hospital practice it has outstanding advantages.

Blood Changes Under Ethylene Anesthesia.—A study made by Trout of 100 ethylene anesthesias as to the effect on the blood showed: (*a*) less alteration of the percentage of blood sugar; (*b*) no appreciable change in either the coagulation time or the bleeding time, and (*c*) only a slight disturbance of the native complement when compared with any other of the now commonly employed anesthetics.

Anesthetic Preferences of Surgeons.—From an analysis made by Stanton of questionnaires sent to surgeons to determine anesthetic preference, it is evident that for operations of the type of the average run of laparotomies 555 out of 657 use ether alone or rely largely on ether after a primary anesthesia started with some other of the volatile anesthetics. One half of all the surgeons and approximately 60 per cent of the ether-using surgeons use straight ether. Of the reporting surgeons who start with some other anesthetic and switch to ether, the great majority use the nitrous oxide-ether sequence, a few use ethylene plus ether, and three surgeons use the ethyl chloride-ether sequence. The outstanding fact is that approximately 85 per cent of 640 surgeons use ether as their standard anesthetic in operations of the type of the average laparotomy.

Effect of Glycosuria in Surgery.—Bruce et al. have operated on ninety-seven patients with diabetes, with two deaths, a mortality rate of 2.1 per cent. One patient had advanced carcinoma of the stomach and died two weeks after a gastroenterostomy; the second was suffering from advanced diabetic gangrene and succumbed suddenly from a cardiac condition on the tenth day after operation. The authors describe the procedure employed by them when operating on patients with diabetes.

Results of Operation for Carcinoma of Stomach.—St. John analyzes 147 cases of carcinoma of the stomach treated surgically by various operators. Of fifty-seven cases that came to necropsy, the tumor was situated in the pylorus region in twenty-six. There were thirty-seven adenocarcinomas. The liver and the regional lymph nodes were the most frequent sites for metastases. In 122 cases, pain was a distinct symptom. In 103 of the cases, repeated vomiting was recorded. In seventy-eight cases, an abdominal mass had been recorded before operation. Nine of the patients who, on exploration, were found to present extensive carcinoma of the stomach, were under 35 years of age.

Arkansas Medical Society Journal, Little Rock

24: 61-78 (Aug.) 1927

*Tularemia. S. C. Fulmer, Little Rock.—p. 61.
Prevention and Treatment of Certain Complications Following Laparotomy. C. S. Williamson, Little Rock.—p. 68.
Apparatus for Facilitating Transfusions. S. P. Bond, Little Rock.—p. 72.

Tularemia in Arkansas.—Eighteen cases of this disease are now recorded from Arkansas. Fulmer reports one of them. All the patients gave the history of handling rabbits. The incubation period was from two to five days; all were of the glandular type. In all except one the initial lesion was on the hands. The mother reported that some bile from the rabbit's gallbladder was accidentally introduced into her boy's eye. The course of the disease was not unusual in any other particular. In these eighteen cases there was only one death. The patient died on the twelfth day of illness with symptoms characteristic of general peritonitis.

Atlantic Med. Journal Harrisburg, Pa.

30: 675-758 (Aug.) 1927

Cardiovascular Syphilis. A. S. Warthin, Ann Arbor, Mich.—p. 675.
Treatment of Superficial Burns. I. S. Ravdin, Philadelphia.—p. 679.
Hernia in Relation to Compensation Law. R. P. Batchelor, Palmerton, Pa.—p. 683.
Treatment of Cranial Trauma. L. H. Landon, Pittsburgh.—p. 687.
Physiotherapy: Rôle in Rehabilitation of Injured. E. H. Rebhorn, Scranton, Pa.—p. 689.
*Giardia Intestinalis and Other Intestinal Parasites in Children. E. L. Noone, A. D. Waltz and J. D. Donnelly, Philadelphia.—p. 692.
*Anemias of Childhood. J. C. Gittings, Philadelphia, and W. B. Stewart, Atlantic City, N. J.—p. 698.
Infant Feeding and Food Preparation. J. P. C. Griffith, Philadelphia.—p. 703.

Intestinal Parasites in Children.—*Giardia intestinalis* was found by Noone et al. in 16 per cent of the stools of 304 children under 12 years. The highest incidence was between the fifth and sixth years. It was relatively high after the eighth year. It was twice as common among boys as among girls. Neither definite symptoms nor groups of symptoms were observed that could be interpreted as indicating the possible presence of *Giardia* in the intestinal tracts of the children studied that did not occur more frequently and from readily recognizable causes in children whose stools did not contain *Giardia*. Proportionally, constipation and mild abdominal pain were more common in those children who were infested with *Giardia*. Giardiasis was not accompanied by eosinophilia. Multiple infestation was not uncommon. The roundworm was found more frequently among the colored group and among girls. The dwarf tapeworm was found five times in the white children and not in any of the colored children studied. Various drugs were used in the treatment of giardiasis in a limited number of children without any encouraging result.

Anemias of Childhood.—The most common causes of anemia in childhood, according to Gittings and Stewart, are (1) the withholding of iron-containing foods during the second year, (2) lack of hygienic environment and adequate food and (3) pyogenic infections. Transfusion is the best treatment, intravenous when possible, intraperitoneal otherwise. Careful supervision of hygiene and a maximum of sunlight are essential. A combination of organic with inorganic iron therapy gives the best results.

Boston Medical and Surgical Journal

197: 165-204 (Aug. 4) 1927

*Retinitis and Other Changes in Eyes of Diabetics. F. M. Spalding and W. S. Curtis, Boston.—p. 165.
Endocrine Hypofunction in Ear Disease. D. W. Drury, Boston.—p. 176.

197: 205-246 (Aug. 11) 1927

Diagnosis and Management of Acute Surgical Lesions of Lower Abdomen. P. P. Johnson, Beverly, Mass.—p. 205.
Acute Surgical Lesions of Upper Abdomen. E. P. Richardson, Boston.—p. 210.
Traumatic Lesions of Abdomen. K. Emerson, Worcester, Mass.—p. 214.
Safety Factors in Treatment of Acute Intestinal Obstruction. A. O. Whipple, New York.—p. 218.
Medical Man's Part in Management of Acute Abdominal Lesions. R. Fitz, Boston.—p. 222.
So-Called Abdominal Emergencies. J. H. Gibbon, Philadelphia.—p. 226.

Retinitis in Diabetes.—Among 307 diabetic patients ranging in age from 11 to 73 years, 207 did not present abnormalities of the retina, forty-six showed retinal arteriosclerosis with no other changes, sixteen exhibited a retinitis, all showing arteriosclerosis, and thirty-two patients had cataracts. Of the patients with cataracts eleven showed arteriosclerosis of the retinal vessels. In fifteen of the cases presenting cataracts no fundus could be seen. Changes in refraction, indicated clinically by a blurring of vision and in two cases by a temporary loss of sight, were found in twenty-two patients. Only two patients exhibited the punctate form of retinitis. Both had marked hypertension and renal impairment. Hypertension is a consistent finding in cases presenting retinal arteriosclerosis and retinitis. A relationship, though not a very close one, between peripheral and retinal sclerosis, and between peripheral sclerosis and hypertension, was found by Spalding and Curtis.

Colorado Medicine, Denver

24: 239-266 (Aug.) 1927

Influence of Early Medicine on West. C. F. Hegner, Denver.—p. 243.
*Cancer Coexisting with Tuberculosis. A. P. Damerow, Denver.—p. 250.
Crossed Ectopic Kidney. M. L. Beebee, Boulder.—p. 255.
Accidental Concealed Hemorrhage. M. L. Beebee, Boulder.—p. 256.
*Obermayer's Test for Indican in Urine. D. N. Beacom, Denver.—p. 256.

Cancer Coexistent with Tuberculosis.—Damerow reports the case of a man, aged 36, who died from a combination of stomach cancer and pulmonary tuberculosis. Clinically the gastric carcinoma seemed to antedate the tuberculosis for a considerable time. Postmortem examination revealed an acute ulcerative caseopneumonic pulmonary tuberculosis on the right side involving almost the entire lung, the middle lobe being least involved; the left side revealed only a few old tuberculous nodules at the stomach with massive nodules in the omentum, lymph glands, pelvis and on the diaphragm. Organ metastases were found mainly in the liver. Microscopic study revealed an adenocarcinoma of the stomach, liver, right suprarenal, omentum and mesenteric lymph nodes as well as tuberculosis of the lungs, substernal lymph nodes, liver, spleen and left kidney.

Obermayer's Test for Indican in Urine.—Beacom states that the best results are obtained with this test when equal parts of the reagent (concentrated hydrochloric acid, 1,000 cc., and ferric chloride, 2 Gm.) and the urine are used.

Endocrinology, Los Angeles

11: 161-264 (May-June) 1927

Thyroids. O. Riddle, New York.—p. 161.
*Ovarian Follicular Substance. E. Novak, Baltimore.—p. 173.
*Corpus Luteum in Relation to Menstruation and Pregnancy. J. P. Pratt, Detroit.—p. 195.
*Water Intoxication in Severe Diabetes Insipidus. A. M. Snell and L. G. Rowntree, Rochester, Minn.—p. 209.
Action of Suprarenal Tissue on Lecithin. H. W. C. Vines, Cambridge, England.—p. 224.
Vertigo and Deafness Associated with Hypothyroidism. R. C. Moehlig, Detroit.—p. 229.
Effect of Pregnancy and Lactation on Blood Calcium of Thyroparathyroidectomized Dogs. E. Larson and N. F. Fisher, Chicago.—p. 233.
Retinitis Pigmentosa Arrested by Organotherapy and Antisyphilitic Treatment. H. L. Hilgartner, Austin, Texas, and J. S. Lankford, San Antonio, Texas.—p. 237.

Ovarian Follicular Substance.—Novak expresses the belief that the results in laboratory animals are not applicable to the human patient, chiefly because of the differences in the mechanism of the sexual cycles. The ovarian follicle hormone is relatively less, and the corpus luteum relatively more important in the human being than in the lower animals, including monkeys. Conditions of ovarian hypofunction, such as amenorrhea, furnish the logical indication for ovarian therapy. The suggestion is made that the menstrual mechanism be imitated by combining the administration of the follicle and the corpus luteum extracts in proper sequence. This will at least give a very rational basis for treatment, and, if potent extracts are available, will probably give better results than the use of follicle extracts or corpus luteum extract alone. The treatment of amenorrhea by this method is rational, but it presents several serious practical disadvantages. One of these is the difficulty of persuading patients to keep up, usually for a considerable time, a form of treatment necessitating at least daily hypodermic injections for considerable periods. The other is the fact that the condition treated is usually, so far as we know, in itself quite innocuous. The proportion of cases in which such methods of treatment are possible and proper is sufficiently great to furnish very valuable human material for experimental research.

Corpus Luteum; Menstruation; Pregnancy.—Pratt concludes that the corpus luteum is an important factor in controlling the menstrual cycle, but its exact rôle cannot yet be assigned. Whenever a corpus luteum is removed, either by itself or with the ovary in which it is contained, the next menstrual interval is disturbed. While observations reported in the literature do not entirely agree, the preponderance of evidence indicates that this disturbance is usually in the nature of an earlier period, which establishes a new cycle of menstruation.

Water Intoxication in Diabetes Mellitus.—In a case of diabetes insipidus secondary to epidemic encephalitis, the following unusual features have been observed by Snell and Rowntree: A compulsion of thirst relatively unaffected by pituitary extract. A history of convulsions, which on analysis appeared to be secondary to water intoxication. Clinical evidence of such intoxication while the patient was under observation, accompanied by laboratory data suggesting blood dilution. These changes are similar in kind and degree to those accompanying experimental water intoxication. A compensatory mechanism of heat regulation, to counterbalance the heat debt incurred by the ingestion of large amounts of ice-water. This mechanism included an increased intake of food to meet the excessive calory requirements, muscular movements (shivering) and peripheral vasoconstriction producing phenomena similar to those observed in Raynaud's disease. These vasomotor changes appeared to be affected by pituitary extract and the water balance at the moment. The danger of pituitary extract in such a case is obvious; with the kidneys rendered less active to an excess of water by the drug, the urinary output is reduced. Since the thirst was only slightly diminished, the possibility of blood dilution and consequent water intoxication is greatly increased.

Florida Med. Assoc. Journal, Jacksonville

14: 55-102 (Aug.) 1927

Cesarean Section. R. A. Ely, Tampa.—p. 71.
Diseases of Kidney. S. Erwin, Jacksonville.—p. 74.
Malnutrition of Infants. J. H. Bickerstaff, Pensacola.—p. 78.
Lichen Planus. J. L. Kirby-Smith, Jacksonville.—p. 82.
Case of Tularemia. N. A. Baltzell, Marianna.—p. 83.
Study of Respiratory Cavities with Lipiodol. W. J. Knauer, Jacksonville.—p. 84.

Indiana State Med. Assoc. Journal, Ft. Wayne

20: 283-318 (Aug.) 1927

Modern Increase in Heart Disease. J. H. J. Upham, Columbus.—p. 283.
Pyuria. D. N. Eisendrath, Chicago.—p. 287.
Ethmoiditis and Sphenoiditis. W. S. Tomlin, Indianapolis.—p. 290.
Liver Pathology and Physiology: Relation to Diseases of Gallbladder. M. N. Hadley, Indianapolis.—p. 293.
Poisoning from Shoe Dye. L. Shinabery, Fort Wayne.—p. 296.

Iowa State Med. Society Journal, Des Moines

17: 269-306 (Aug.) 1927

Hematologic Subjects. J. H. Musser, New Orleans.—p. 269.
Thymus Gland. H. A. Spilman, Ottumwa.—p. 276.
Nature vs. Science. M. L. Turner, Des Moines.—p. 278.
Ideals in Practice of Medicine. F. Moore, Des Moines.—p. 282.
Syphilis. R. E. Jameson, Davenport.—p. 285.

Kansas Medical Society Journal, Topeka

27: 251-286 (Aug.) 1927

Family Doctor; Surgeon; Evaluation of Referred Patient as Risk. I. B. Parker, Hill City.—p. 251.
Medical Legislation. J. A. Milligan, Garnett.—p. 253.
William S. Halsted: His Life and Influence. R. H. Major, Kansas City.—p. 255.
Use of Antisyphilitic Remedies. S. L. Axford, Lansing.—p. 258.
Postoperative Thrombophlebitis with Pulmonary Complications. J. D. McMillion, Coffeyville.—p. 261.
Relative Frequency of Disease Conditions. A. S. Welch, Kansas City.—p. 266.
Fighting Anemia. E. A. Miner, Independence.—p. 267.
Suggestive Menus for Use in Anemic Cases. D. I. Purdy, Pittsburgh.—p. 269.
Invite the Public. J. T. Scott, St. John.—p. 273.
Chronic Lymphatic Leukemia. D. R. Black, Lawrence.—p. 273.
Tendon Shifting and Tendon Transplantation. C. B. Francisco, Lawrence.—p. 274.

Kentucky Medical Journal, Bowling Green

25: 391-470 (Aug.) 1927

Applied Therapeutics of Hepatic Extract. R. A. Bate, Louisville.—p. 393.
Local Anesthesia in Office Technic. G. E. Vaughan, Louisville.—p. 402.
*Measles: Prophylactic Use of Convalescent Whole Blood. G. S. Buttorff, Louisville.—p. 406.
Congenital Hypertropic Pyloric Stenosis. J. W. Bruce, Louisville.—p. 410.
*Cholecystogastrostomy. J. D. Hancock, Louisville.—p. 412.
*Management of Carbuncles. A. D. Willmoth, Louisville.—p. 414.
Renal Tuberculosis: Case. L. Frank, Louisville.—p. 419.
*Diabetes in Child. T. C. Smith, Louisville.—p. 425.
Intravenous Absorption After Caudal Block. D. C. Elliott, Louisville.—p. 426.
Chronic Myocarditis. R. H. Davis, Louisville.—p. 428.
Unilateral Vocal Cord Paralysis Apparently Due to Hypertrophied Tonsils. J. R. Peabody, Louisville.—p. 437.
Case of Astragaloscaphoid Dislocation. J. E. Winter, Louisville.—p. 438.
Urinary Frequency in Female. C. G. Hoffman, Louisville.—p. 439.
Infections of Hand. I. N. Kerns, Louisville.—p. 445.
Osteomyelitis in Frontal Bone and Pansinusitis (Chronic): Case. A. L. Bass, Louisville.—p. 449.
Roentgen-Ray Changes Seen in Paranasal Sinuses. D. Y. Keith, Louisville.—p. 450.
Acute Sinuses. C. Y. Kelly, Louisville.—p. 451.
Chronic Sinusitis. O. Dulaney, Louisville.—p. 452.
Nasal Polypi. G. A. Robertson, Louisville.—p. 454.
Treatment of Inflammation of Nasal Accessory Sinuses. S. Watkins, Louisville.—p. 455.
Treatment of Gastric and Duodenal Ulcer. H. M. Meredith, Scottsville.—p. 461.
Focal Infections as Causative Factors in Production of Medical and Surgical Conditions. L. L. Solomon, Louisville.—p. 462.
Sawdust Beds for Insane. W. R. Thompson, Lexington.—p. 465.
Acute Retention of Urine Due to Traumatic Stricture of Urethra in Boy Eight Years Old: Case. I. H. Cutler, Louisville.—p. 466.

Prophylaxis of Measles.—Twenty patients known to have been exposed to measles were injected by Buttorff with amounts of whole blood varying from 3 to 12 cc., or an average of 9.5 cc. One child developed a mild form of measles but succumbed to a virulent bronchopneumonia contracted three days after injection of the blood. The patient from whom the blood was drawn was only nine days convalescent from measles and therefore may not have developed sufficient antibodies. Despite the fact that the majority of the cases had been exposed over three days, nineteen, or 95 per cent, were rendered passively immune.

Cholecystogastrostomy.—Hancock reports a case of carcinoma of the head of the pancreas in which a cholecystogastrostomy was performed for the relief of cholemia. The patient was relieved and lived for six months after the operation.

Treatment of Carbuncles.—In the treatment of carbuncles, Willmoth used the d'Arsonval bipolar current. Assuming that for some reason or reasons the patient should not or will not take either a local or general anesthetic, and the amount of tissue is not too great, the area involved can be anesthetized by using the same type of current as will be used in operating. The dispersing (so-called indifferent) electrode of the machine is attached to any part of the patient's body that is most convenient; or, what is a very good method, the autocondensation handle is used and the indifferent cord of the machine attached to this, and the patient told to grasp it with both hands not so tightly as to cramp the hands, but firmly. To the other cord of the machine is attached the handle of the active electrode which is to be used with the needle point in destroying the carbuncle. One should start with a very light current—just enough to make the so-called feather spark—allowing this to come in contact with the skin about one-fourth inch or a little more from the margin of the area to be destroyed. By passing this in a circular manner around the carbuncle for from three to five minutes and gradually increasing the spark to the point of tolerance, and at the same time increasing the speed of the revolutions, one can numb the entire area, and without telling the patient, the needle is pushed into the infected tissue as deep as is necessary to reach the deepest points of infection and allowed to remain there, the current being increased, if needed, until the tissue is blanched white. The amount of current needed will usually be about 250 to 500 milliamperes and the time twenty to thirty seconds. When the tissue becomes white, the needle is removed and inserted into another adjoining area and the current applied with the foot switch until the tissue is again blanched. By repeating this procedure, one can destroy the diseased area in a few minutes, and only healthy tissue will remain. When all infected tissue is coagulated, the major portion can be removed at once with a large spoon curet, only a healthy base being left. Any bleeding points are controlled by allowing the current to arc for one-half inch spark distance, when all bleeding will instantly stop. The wound is now clean and ready to be dressed with plain sterile gauze. Pain will not be experienced after the treatment is over, for the reason that small terminal nerve endings are obtunded by the current.

Diabetes in Child.—Smith reports a case of diabetes in a 3 year old colored boy, who recovered from beginning gangrene, and did well living at home, with diet and insulin managed by his mother.

Michigan State M. Soc. Journal, Grand Rapids

26: 491-548 (Aug.) 1927

Socialization and Paternalism in Medical Practice. M. Fishbein, Chicago.—p. 491.
Beaumont: Michigan's Pioneer Physiologist. B. R. Corbus, Grand Rapids.—p. 500.
Correction of Facial Disfigurements. C. L. Straith, Detroit.—p. 506.
Training of Surgeon. G. H. Southwick, Grand Rapids.—p. 515.
Acute Appendicitis with Appendix in Pelvis. R. R. Smith, Grand Rapids.—p. 518.
Conservative Pelvic Surgery. H. H. Cummings, Ann Arbor.—p. 519.
Practice of Medicine in Michigan Nearly Fifty Years Ago. V. F. Huntley, Lansing.—p. 521.

Minnesota Medicine, St. Paul

10: 465-528 (Aug.) 1927

*Relationship Between Body Build and Physiologic Characters in University Students. C. M. Jackson, Minneapolis.—p. 465.
Value of Bronchoscopy in Pulmonary Disease. H. J. Moersch, Rochester, Minn.—p. 467.
*Acute Suppurative Appendicitis: Factors in Mortality. I. Sivertsen and A. W. Dahlstrom, Minneapolis.—p. 472.
Observations on Pneumonia by Country Doctor. P. E. Hermanson, Ivanhoe.—p. 483.
Prevailing Type of Tuberculosis in Childhood. C. A. Stewart, Minneapolis.—p. 487.
Factors in Promotion of Health in Duluth. A. T. Laird, Nopeming.—p. 490.
Ophthalmoscopic Evidence of General Circulatory Disease. F. E. Burch, St. Paul.—p. 495.

Relation Between Body Build and Function.—The relations between body build and physiologic functions found by Jack-

son in a group of 1,633 students may be thus summarized: As to the respiratory mechanism, there appears no appreciable correlation between body build and chest expansion; but there is a definite, though rather small, correlation between body build and vital capacity. As to cardiovascular functions, the present data indicate a slight negative correlation between body build and pulse rate, a doubtful correlation between body and systolic blood pressure, and a rather small positive correlation between body build and Schneider's cardiovascular rating. On the whole, the comparatively low degrees of correlation found would seem to indicate that the respiratory and cardiovascular functions are dependent chiefly on factors not directly associated with the general bodily habitus.

Mortality of Appendicitis.—It is shown by Sivertsen and Dahlstrom that the mortality from appendicitis has increased during the last fifteen years. Familiarity has apparently bred contempt, but appendicitis still belongs to the sphere of major surgery. Because of the incidence of acute suppurative appendicitis, every tyro should not be encouraged to operate in such serious surgical cases. Surgical intervention should be instituted as soon as a diagnosis is made. The earlier the diagnosis and intervention, the lower the mortality. The removal of the appendix at the primary operation is the method of choice, especially in skilled hands. The factors of age, sex, presence of fecalith, or location of the appendix do not seem to contribute anything to the mortality rate from this disease. The factors of delay (permitting extension of the process), the presence of gangrene, perforation, abscess, peritonitis and ileus at operation are attended with definitely increased mortality rates. The presence of or development after operation of complications such as ileus, general peritonitis, cardiac conditions and pulmonary conditions is a factor in increased mortality. The presence of, or development of, postoperative secondary abscess, fecal fistula, and hernia does not contribute to increased mortality figures. Ether has been found of value in the treatment of suppurative appendicitis, because of its antiseptic, coagulating and stimulating properties. The use of the Penrose cigaret drain is a step forward in drainage of the peritoneal cavity. Fecal fistulas have not been seen since the use of the Penrose drain.

Missouri State M. A. Journal, St. Louis

24: 341-396 (Aug.) 1927

Treatment of Crippling Conditions in Children: Prevention of Deformities. L. C. Abbott, St. Louis.—p. 341.
State Care of Crippled Children. A. O'Reilly, St. Louis.—p. 347.
*Experimental Gastroduodenal Ulcer: Duodenum. L. H. Slocumb, St. Louis.—p. 351.
Blood Transfusion: Medical Aspect. L. J. Reilly, St. Louis.—p. 356.
Id.: Surgical Indications. C. A. Vosburgh, St. Louis.—p. 360.
Id.: Laboratory Aspects. R. B. H. Gradwohl, St. Louis.—p. 362.
Pelvic Inflammation in Women. H. E. Pearse, Kansas City.—p. 366.
Gayler Specimen Forceps. W. C. Gayler, St. Louis.—p. 369.
Vaginal Endoscopy. H. W. Soper, St. Louis.—p. 369.

Experimental Gastroduodenal Ulcer.—On the basis of experimental work, Slocumb asserts that partial obstruction of the duodenum of a dog will cause ulceration of the stomach or duodenum in a large percentage of cases. These ulcers are similar in character to acute ulcers as found in the human stomach. In view of the peculiar position of the duodenum in man, it seems reasonable to believe that obstruction occurs more often than is generally believed. Because of the associated frequency of ulcer and duodenal obstruction as noted in the literature, and the evidence presented by Slocumb's experiments, close examination of this region at the time of operation seems of importance. Slocumb suggests that failure to examine the duodenum carefully at the time of operation may in part explain the high percentage of surgical failures in this field of surgery.

Nebraska State M. Journal, Norfolk

12: 281-320 (Aug.) 1927

Gallbladder. T. C. Witherspoon, Butte, Mont.—p. 281.
Sterility in Female. E. C. Sage, Omaha.—p. 287.
"Am I My Brother's Keeper?" M. Nielsen, Blair, Neb.—p. 293.
Congenital Dislocations of Hip. J. W. Martin, Omaha.—p. 296.
Treatment of Diabetes Mellitus. F. L. Rogers, Lincoln.—p. 300.
Vaccine Therapy. A. S. Rubnitz, Omaha.—p. 302.
Subdural Abscess of Spinal Cord: Good Functional Recovery Following Operation. A. E. Bennett and J. J. Keegan, Omaha.—p. 310.
Carcinoma of Body of Uterus: Invasion of Periuterine Structures by Direct Extension: Metastasis to Bones of Skull and Pelvis by Hematogenous Route. A. F. Tyler, Omaha.—p. 311.
Pathologic Intra-Ocular Tensions. D. D. Sanderson, Lincoln.—p. 311.

New Jersey Med. Soc. Journal, Orange

24: 465-514 (Aug.) 1927

Early Jejunostomy in Paralytic Ileus. S. J. Soschin, Newark.—p. 465.
Chronic Gallbladder Disease. E. C. Klein, Jr., Newark.—p. 468.
Preventive Pediatrics. H. H. Mason, New York.—p. 473.
Encephalitis. A. M. Ornsteen, Philadelphia.—p. 477.
Early Toxemia of Pregnancy. W. F. Costello, Dover.—p. 479.
Pathology and Pathogenesis of Toxemias of Pregnancy. G. J. Young, Morristown.—p. 482.
Toxemia of Pregnancy: Eclampsia. L. E. Williams, Madison.—p. 485.

New Orleans Medical and Surgical Journal

80: 67-142 (Aug.) 1927

Genesis and Development of Science of Medicine. T. E. Rose, Hattiesburg, Miss.—p. 67.
*Diagnosis of Coronary Occlusion. I. I. Lemann, New Orleans.—p. 73.
Amebic Disease. J. C. Cole, New Orleans.—p. 81.
Septicemia. I. Cohn, New Orleans.—p. 84.
*Carbon Monoxide Poisoning. W. C. Jones and J. O. Pinkston, Birmingham, Ala.—p. 99.
Neisserian Urethritis and Prostatitis. C. E. Verdier, New Orleans.—p. 109.
Extensive Colonic Polyposis: Report of Three Cases. A. L. Levin, New Orleans.—p. 112.
Disturbed Physiology in Nephritis: Review. H. F. Brewster, New Orleans.—p. 120.
Points in Management of Labor. E. Kiblinger, New Orleans.—p. 126.

Diagnosis of Coronary Occlusion.—Lemann feels that coronary occlusion must be regarded as a common occurrence. Of thirty-six cases with the syndrome of angina, there are in fifteen of these cases adequate grounds for believing that a coronary occlusion had occurred.

Carbon Monoxide Poisoning.—The diagnosis of carbon monoxide poisoning, Jones and Pinkston point out, rests mainly on (*a*) history of possible exposure, (*b*) presence of carbon monoxide in the blood either before or after death, and (*c*) at autopsy (1) preservation of the body from decomposition, (2) a bright red color of the organs and tissues of the body including the blood, and (3) the fluidity of the blood. For the demonstration of carbon monoxide in the blood they recommend especially of the older tests those with potassium ferrocyanide, mercuric chloride, zinc chloride, ammonium sulphide, lead subacetate, tannic acid, trinitrophenol, heat, and simple dilution. Tests with phenol and with alum are the best. More than one test should be made on each unknown specimen. Each test should be made several times with different amounts of the reagents and various dilutions of blood.

New York State J. Medicine, New York

27: 819-876 (Aug. 1) 1927

Atypical Form of Neurofibroma: Differential Diagnosis. O. L. Levin and J. A. Tolmach, New York.—p. 819.
Capacity of Dermatology. W. A. Pusey, Chicago.—p. 828.
Clinical Use of Ephedrine. W. S. Thomas, New York.—p. 831.
Sex Components in Men and Women. R. Kingman, New York.—p. 833.
Difficult Surgical Problems in Urologic Practice. D. M. Davis, Rochester.—p. 836.
*Acne Vulgaris. H. H. Bauckus, Buffalo.—p. 838.
Neurone Block for Relief of Pain. G. I. Swetlow, New York.—p. 841.
"Pilonidal Sinus." H. W. Jones, Utica.—p. 845.

27: 877-938 (Aug. 15) 1927

Systemic Treatment of Skin Diseases. E. W. Abramowitz, New York.—p. 877.
Cesarean Section. W. T. Getman, Buffalo.—p. 887.
Rabies Control. V. A. Moore, Ithaca.—p. 892.
Cooperation Between Internist and Surgeon in Handling Biliary Tract Conditions. J. A. Lichty and C. W. Webb, Clifton Springs.—p. 896.
Possible Relationship Between Convulsions in Early Life and Epilepsy. W. T. Shanahan, Sonyea.—p. 899.
Pigeon Hole Dermatology. W. J. Highman, New York.—p. 907.

Acne Vulgaris.—Bauckus regards children displaying unusual activity of the sebaceous glands as potential cases of acne. Washing the face and hands of the young freely with soap and hot water is a good hygienic measure and will prevent a great deal of acne. Children with blackheads ought to be treated for this condition. Physicians should avoid

prescribing bromides and iodides to persons having blackheads unless such drugs are absolutely necessary. Combination of various local and of general measures offers the best result in treatment.

Northwest Medicine, Portland, Ore.

26: 377-426 (Aug.) 1927

Cholecystitis. E. S. Judd, Rochester, Minn.—p. 377.
Clinical Value of Blood Sedimentation. T. W. Adams, Portland, and M. Norgore, Seattle.—p. 381.
Epidermophytosis. H. Odland, Seattle.—p. 387.
*Hyperemesis Gravidarum. R. D. Mussey, Rochester, Minn.—p. 389.
Subacute Bacterial Endocarditis. C. E. Watts, Seattle.—p. 394.
Newer Rhinology. F. A. Kiehle, Portland.—p. 397.
Treatment of Syphilis. E. Flehme, Spokane, Wash.—p. 401.
Local Anesthesia in Major Surgery. B. N. Wade, Portland.—p. 409.
Retroperitoneal Cyst. J. N. Davis, Kimberly, Idaho.—p. 414.
*Tularemia. H. D. Junkin, Idaho Falls, Idaho.—p. 415.

Treatment of Hyperemesis Gravidarum. — In Mussey's opinion the best treatment of hyperemesis gravidarum is a diet high in carbohydrates and a high fluid intake, with sufficient sedatives to raise the threshold of nervous irritability and anxiety. The use of dilute hydrochloric acid in certain of these patients whose gastric acidity is low appears to be a rational treatment. In severe cases the use of intravenous injections of 100 Gm. of dextrose daily in at least 1,000 cc. of water to be followed by insulin hypodermically has seemed to be of distinct value.

Skin Lesions in Tularemia.—Each of the two cases reported by Junkin presented an unusual lesion. In one there was a papular eruption and in the other were subcutaneous nodules resembling sporotrichosis. In the first case, a papular eruption appeared on the fourteenth day and was distributed over the face, forehead, neck, shoulders and anterior surfaces of the legs near the junction of the middle and lower thirds. The papules were red and hard but were not painful, nor did they itch. One papule occurred at the inner canthus of the left eye, causing considerable edema about the eye. The eruption remained for twelve days, disappeared for about a week, and then reappeared. The second appearance was much less marked than the first and disappeared by the third day. In the second case the infection entered through an abrasion located on the palmar surface of the distal phalanx of the third finger of the right hand. Twelve subcutaneous nodules about the size of peas appeared on the seventh day of illness, distributed along the course of the vessels on the anterior surface of the right arm and forearm.

U. S. Veterans' Bureau Med. Bull., Washington, D. C.

3: 759-859 (Aug.) 1927

Treatment of Amebiasis with Stovarsol. F. M. Seibert.—p. 770.
Control of Mortality in Surgery of Biliary Tract. A. H. Dunn.—p. 774.
Physical Measures in Treatment of Osseous Disease and Injury. C. R. Brooke.—p. 782.
Pericarditis, Complicating Pulmonary Tuberculosis. C. C. Benedict.—p. 789.
Desirability of Local Boards of Managers or Visitors for Veterans' Bureau Hospitals. G. F. Brewster.—p. 798.
Improving Our Contact with Relatives of Patients. H. Mella.—p. 801.
*Comparative Study of Colloidal Mastic and Colloidal Gold Tests on Cerebrospinal Fluids. R. C. Henderson.—p. 803.
Dental Engineering. C. A. Patterson.—p. 808.
*Metastatic Carcinoma of Heart. W. A. Cashion.—p. 810.
Actinotherapy in Lupus Vulgaris. W. L. Carman.—p. 815.
Neuropsychiatric Training. A. H. Pierce.—p. 832.
Gastro-Enteroptosis with Gastric Dilatation Treated by Physiotherapy. C. E. Willard.—p. 837.

Colloidal Mastic and Gold Tests of Cerebrospinal Fluids.—Forty-nine specimens of spinal fluid were studied by Henderson to determine the comparative value of the colloidal mastic and the colloidal gold tests. It appears that the mastic paretic curve is less reliable than the gold paretic curve as an indication of general paralysis, because of the greater frequency with which it occurs in other types of neurosyphilis. The mastic "3" curve seems to indicate borderline cases, and should be interpreted in connection with other evidence, laboratory and clinical. Although there is a close parallelism between the colloidal gold and the colloidal mastic tests, one should not be substituted for the other when laboratory facilities admit of the performance of both.

Metastatic Carcinoma of Heart.—In Cashion's case, the metastasis in the heart was secondary to a malignant condition of the penis for which a complete amputation had been done a year previously.

Virginia Medical Monthly, Richmond

54: 271-334 (Aug.) 1927

Diagnosis of Acute Abdomen in Children. F. H. Smith, Abingdon.—p. 271.
Surgical Treatment of Acute Abdomen in Child Under Ten Years Old. W. C. Caudill, Pearisburg.—p. 274.
Our Obstetric Problem. L. A. Calkins, University.—p. 277.
*Fractures of Spine. C. S. Lawrence, Winston-Salem, N. C.—p. 279.
*Von Jaksch's Disease and Secondary Anemia Occurring in Twins. T. D. Jones, Richmond.—p. 283.
Rectum as Focus of Infection. W. L. Powell, Roanoke.—p. 285.
Intestinal Obstructions. T. J. Hughes, Roanoke.—p. 287.
Ethmoiditis. F. E. Hamlin, Roanoke.—p. 288.
*Tumors of Small Intestine: Adenocarcinoma. R. H. Wood, Atlanta, Ga., and S. S. Pena, Naguabo, Porto Rico.—p. 292.
Squamous Cell Epithelioma of Body of Uterus. A. C. Sinton, Richmond.—p. 298.
Errors of Refraction as Cause of Nervous Symptoms. C. M. Miller, Richmond.—p. 300.
Treatment of Fractures. C. Moore, Roanoke.—p. 303.
Tumors of Spinal Cord. J. J. Shugrue, Rochester, Minn.—p. 305.
Altered Early Opinions as to Childhood Life. D. B. Stuart, Dublin.—p. 308.
Toxic Goiter. P. Davis, Roanoke.—p. 310.
Pyelitis. C. H. Lupton, Norfolk.—p. 312.
Rôle of Corrective Exercises in Ptosis. J. B. Fitts, Richmond.—p. 316.

Treatment of Fractures of Spine.—Lawrence reports his experience with thirteen cases, in five of which laminectomy was performed. One of these patients died. The patient had a fracture of the third cervical vertebra, the result of diving. Laminectomy followed by autopsy showed complete severance of the cord. One patient shows no improvement, neurologically. She was struck by an automobile, and the sixth dorsal vertebra was fractured, causing complete paralysis below. The patient now (two years after injury) is completely paralyzed from the seventh segment downward; otherwise she feels well, gets about in a rolling chair, and keeps herself occupied with hand work. Lawrence urges that laminectomy should be performed in all cases of paralysis. No cast or restraining apparatus should be used until the patient is able to be up in a rolling chair; then the cast should be applied in a sitting position with the spine stretched. The cast should be worn until firm union has taken place.

Anemias in Twins.—In both of Jones' cases there was a clear history of several distinct factors known to have a tendency to cause anemia in infancy, such as twins, prematurity and inadequate diet.

Adenocarcinoma of Small Intestine.—A case of multiple primary adenocarcinoma of the small bowel is reported by Wood and Pena. The tumor literally surrounded the upper part of the jejunum. Scattered along the intestine at various intervals were nine other tumors, four or five of which involved the intestinal wall, the others being well developed polypi. In two places, there was definite intussusception, without, however, complete obstruction. The last polyp was near the ileocecal valve.

West Virginia Medical Journal, Charleston

23: 393-448 (Aug.) 1927

Carcinoma of Breast. J. B. Deaver, Philadelphia.—p. 393.
Infant Feeding in Relation to Diseases at All Ages. A. A. Shawkey, Charleston.—p. 398.
Roentgen-Ray Diagnosis of Diseases of Gastro-Intestinal Tract. J. T. McKinney, Roanoke, Va.—p. 402.
Symptoms of Sinus Infections. F. T. Scanlon, Morgantown.—p. 406.
Hypertension. P. R. Fox, McComas.—p. 408.
Family Doctor and Cancer Problem. F. L. Hupp, Wheeling.—p. 411.

Wisconsin Medical Journal, Milwaukee

26: 391-440 (Aug.) 1927

Fibroid Tumors: What Determines Selection of Radium or Operation in Treatment. J. O. Polak, New York.—p. 391.
Status of Roentgenotherapy. H. R. Foerster, Milwaukee.—p. 396.
Limitations of Roentgenodiagnosis. F. J. Hodges, Madison.—p. 397.
Human Anomalies: I. Abnormal Crania—Hydrocephalic, Achondroplastic, Oxycephalic and Acromegalic. E. J. Carey, Milwaukee.—p. 399.
Chronic Inflammatory Hyperplastic Condition of Alveolar Process of Premaxillary Bone. M. N. Federspiel, Milwaukee.—p. 412.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Trop. Med. & Parasitology, Liverpool

21: 89-302 (July 22) 1927

*Transmission of Leishmania Tropica from Artificially Infected Sandflies to Man. S. Adler and O. Theodor.—p. 89.
*Behavior of Cultures of Leishmania Sp. in Phlebotomus Papatassii. S. Adler and O. Theodor.—p. 111.
*Relative Number of Male and Female Crescents in Peripheral Blood. J. L. Pawan.—p. 135.
*Experimental Infection of Cat and Fox with Adult Echinococcus. T. Southwell.—p. 155.
*Administration of Tartar Emetic by Various Routes. H. P. Smyly.—p. 171.
*Experimental Immunity Against Metazoan Parasites and Investigation of Its Nature. D. B. Blacklock and R. M. Gordon.—p. 181.
*Relation Between Weil's Disease and Yellow Fever. A. W. Sellards.—p. 245.
*Case of Oriental Sore. D. U. Owen.—p. 277.
Endameba Histolytica: III. Factors Governing Development and Excystation of Cysts in Vitro. W. Yorke and A. R. D. Adams.—p. 281.
Plasmodium Ovale. J. W. W. Stephens and D. U. Owen.—p. 293.

Experimental Transmission of Leishmaniasis.—Out of twenty-eight attempts made by Adler and Theodor to transmit cutaneous leishmaniasis to man from artificially infected sandflies, six gave positive results. The successful experiments were carried out with *Leishmania tropica*, which had developed eight days and more in *Phlebotomus papatassii*. Nine experiments with *L. tropica* which had developed from two to seven days in *P. papatassii* all gave negative results during an observation period of from five to fifteen months. The histopathology of three lesions of experimental cutaneous leishmaniasis was found to resemble that of naturally occurring oriental sores. Specific agglutinins were demonstrated in two of the experimental cases.

Experimental Studies on Leishmania.—The sandfly *P. papatassii* was infected by Adler and Theodor with *L. tropica*, *L. braziliensis* and two strains of *L. infantum* by feeding on emulsions of parasites through a membrane of rabbit skin. In *P. papatassii*, cultures of *L. tropica* behaved exactly as *L. tropica* ingested from an oriental sore. The pathogenicity for man of culture forms of *L. tropica* was increased by passing through a sandfly. Cultures of *L. infantum* (Paris strain) behaved similarly to *L. tropica* in *P. papatassii*. In the case of a strain of *L. braziliensis* and *L. infantum* (London strain) the infection was confined to the stomach of the sandfly. Napier's formaldehyde reaction was negative with immune serum for *L. tropica*, *L. braziliensis* and two strains of *L. infantum*.

Malaria: Sex of Crescents in Blood.—In the case of malaria studied by Pawan, the proportion of female to male crescents was three to one.

Experimental Echinococcus Infection.—This research by Southwell shows that the cat, the fox, pigs, rabbits, squirrels, turkeys and fowl may be possible sources of infestation with hydatid. Cats, especially, like dogs, should be kept out of abattoirs.

Administration of Antimony and Potassium Tartrate by Various Routes.—Experiments are reported by Smyly designed to determine the best method of administering antimony and potassium tartrate to infants in whom intravenous therapy is found to be impossible. Rectal administration fails because antimony is absorbed in insufficient quantities, which may have the result that the infecting *L. donovani* become antimony resistant. Intramuscular injection is painful and invariably produces necrosis. Intraperitoneal injection in very dilute solutions with physiologic sodium chloride solution is but slightly irritating, and has been successfully used in the cure of a case of kala-azar in an infant, aged 6 months, whose case is reported in detail.

Experimental Immunity to Metazoa.—The metazoan immunity described by Blacklock and Gordon is governed by laws that differ widely from those governing bacterial immunity.

Yellow Fever and Weil's Disease are Infectious Jaundice.—In Sellards' opinion yellow fever and Weil's disease in their symptomatology are typical examples of an acute infectious jaundice. The two diseases are fundamentally different in their etiology, in their epidemiology and in their pathology. The differential diagnosis of Weil's diseases from other types of infectious jaundice can ordinarily be accomplished easily by means of the Pfeiffer reaction with leptospira. If the serum of a patient convalescent from an acute infectious jaundice gives a positive Pfeiffer test with leptospira, using either *L. icterohaemorrhagiae* or *L. icteroides*, then yellow fever can be excluded and the diagnosis of Weil's disease is justified. The disease described in West Africa as yellow fever is identical in all known respects with yellow fever of the New World. *L. icteroides* is not the causative agent of yellow fever. Prophylactic immunization, therefore, with *L. icteroides* can give only a false sense of protection against yellow fever. Purely temporary protection may conceivably be obtained by the use of serum of patients convalescent from yellow fever. In lieu of the designation Weil's disease, the name leptospirosis or leptospiral jaundice is suggested.

Oriental Sore.—The case described by Owen was first diagnosed as acne vulgaris. Later, however, *Leishmania tropica* was found in a sore. Five months later scrapings from sores on the face and elbow were found to contain *L. tropica* in large numbers. The face was covered with nodules, many of which were ulcerated, while others were subcutaneous. The nose, eyelids and ears were involved, one nodule being in the external auditory meatus. The neck, anteriorly and posteriorly, had not escaped. There were four nodules on the chest just below the clavicular level. The dorsal surface of both hands and some of the fingers, the forearms, anteriorly and posteriorly, and elbows were also ulcerated. Two nodules had large rupial crusts. On the forehead alone, eighty odd separate nodules could be counted, and several were found on the scalp. In all there were about 250 nodules on face and forehead.

Archives of Disease in Childhood, London

2: 146-197 (June) 1927

*Scaphocephaly, Oxycephaly and Hypertelorism. A. G. Ogilvie and M. M. Posel.—p. 146.
Manifestations of Rickets in Liverpool. R. Aidin.—p. 155.
*Substitute for Buttermilk in Treatment of Digestive Disorders During Infancy. K. H. Tallerman.—p. 160.
Dick Test in Relation to Presence of Streptococcus Hemolyticus in Throats of Individuals not Suffering from Scarlet Fever. J. Smith.—p. 166.
Dryer and Ward Sigma Reaction in Congenital Syphilis. H. E. Hall and F. M. B. Allen.—p. 171.
Chronic Polyarthritis (Still's Disease) Treated by Intravenous Protein Therapy. H. Thursfield.—p. 175.
*Fits in Children. S. H. Cookson.—p. 178.
Congenital Atresia of Jejunum (with Recovery). G. B. Sweet and C. Robertson.—p. 186.
*Gluteal Wasting as Sign of Celiac Disease. R. Miller.—p. 189.
*Autonomic Nervous System in Children. A. J. Chura.—p. 191.

Hereditary Cranial Maldevelopment.—Two of the three cases reported by Ogilvie and Posel gave evidence of a definitely hereditary abnormality of cranial development. The mother's cousin was similarly affected, and in addition was mentally defective.

Lactic Acid Milk as Buttermilk Substitute.—Tallerman uses a skimmed milk powder prepared by the addition of water to which lactic acid (B. P. 75 per cent) had been previously added. Numerous experiments have shown that the lactic acid, in the proportion of a drachm to the pint (0.7 per cent), can be added to the water required for admixture with the milk powder, and this brought to the boil and poured on the milk powder, while it is being stirred, without causing any more than the finest flocculent curd, all of which will easily pass through the teat of a bottle. It has also been found that further clotting does not take place in this mixture on the addition of rennin.

Fits in Children.—Fifty-five boys and forty-five girls with fits were studied by Cookson. In 20 per cent of cases there was a family history of epilepsy. In one case there was a family and a personal history of eczema. There was a personal history of cyclic vomiting in one case; in no case was there a family history of cylic vomiting, asthma, gout or urticaria. In eighteen instances there was a history of difficult labor. In twenty-six cases there was a deficiency of mentality, more or less marked; in all the others it was

normal. Where mental deficiency was present, it had been noticed as early as the fits; in two cases, mental impairment was stated to be progressive. Of the children with mental deficiency, eight were born with difficulty; one, precipitately, the child's head striking the ground; six had spastic diplegia; one was a mongol, one was regarded as having postencephalitic mental deficiency, and two were microcephalic.

Gluteal Wasting as Sign of Celiac Disease.—Wasting of the buttocks is regarded by Miller as an important early sign of celiac disease. This is seen at a comparatively early stage of the disorder and is apt to persist for a long time, even where improvement is otherwise occurring satisfactorily under treatment. The degree of gluteal wasting varies to some extent according to the general nutrition of the patient, yet, the degree of wasting in the gluteal region is disproportionately greater than that in the rest of the body, and it is this that gives the sign its diagnostic value.

Determining State of Autonomic Nervous System.—The reaction and the fluctuation in the number of leukocytes following irritation of the skin by freezing, Chura asserts, are manifestations of the state of the vegetative nervous system, and of the preponderance of one or the other of its parts, the state of the blood and viscera being taken into consideration. Therefore, he proposes this procedure as a method for examining a certain part of the vegetative nervous system.

Journal of Hygiene, London

26: 111-234 (July) 1927

*Food Poisoning Due to Bacilli of Type B. Morbificans-Bovis (Basenau). A. F. Sladden and W. M. Scott.—p. 111.
*Selective Bactericidal Action. E. A. Cooper and J. Mason.—p. 118.
*Use of Hypochlorites as Sterilizing Agent for Dairy Utensils. W. A. Hoy and J. R. L. Rennie.—p. 127.
Analysis of Influenza Epidemic in New Zealand Division of Royal Navy. S. F. Dudley.—p. 132.
Selection of Strain of Bacillus Pestis for Preparation of Vaccine: Effect of Animal Passage on Virulence. A. S. Burgess.—p. 152.
Relation of Rat-Fleas to Plague in Shanghai. E. P. Hicks.—p. 163.
Spontaneous Epidemic in Mice Associated with Morgan's Bacillus; Etiology of Summer Diarrhea. G. S. Wilson.—p. 170.
Unusual Dysenteric Infections. W. R. Wiseman.—p. 187.
Growth and Nutrition of Slum Child in Relation to Housing. A. M. T. Murray.—p. 198.
*Diet and Tuberculosis. H. Schütze and S. S. Zilva.—p. 204.
Serology of Typhus Fever. W. J. Wilson.—p. 213.
Effects Produced by Inhalation of Hematite and Iron Dusts in Guinea-Pigs. H. M. Carleton.—p. 227.

Food Poisoning Due to Bacillus Morbificans-Bovis.—An outbreak of food poisoning is described by Sladden and Scott in which *B. morbificans-bovis* (Basenau) was the causal agent. The position of this type in the *Salmonella* group as classified by Bruce White has been confirmed by analysis of the antigenic properties and agglutination reactions (including absorption of agglutinin) of the strains isolated in the outbreak.

Selective Bactericidal Action.—Bacteriologic observations made by Cooper and Mason support the view that germicides can naturally be divided into two classes, "chemical" and "physicochemical," their actions on micro-organisms depending, respectively, on (1) chemical reactivity with protoplasmic constituents, and (2) denaturation or precipitation of the cell protein.

Sterilization of Dairy Utensils.—Hoy and Rennie assert that the use of a chlorine preparation as a means of sterilizing churns necessitates the subsequent washing out of the churns with water if the chlorine is to be removed before milk is added. This process introduces the danger of recontamination of the churn.

Diet and Tuberculosis.—No evidence was obtained by Schütze and Zilva that lack of fat soluble vitamins in their diet renders tubercle infected rats susceptible to tuberculin shock.

Lancet, London

2: 213-264 (July 30) 1927

*Coordination of Respiration and Circulation with Variations in Bodily Activity. C. G. Douglas.—p. 213.
Diet and Accessory Food Factors in Relation to Prevention of Diseases of Teeth. J. S. Wallace.—p. 218.
*Pyrexia Induced by Intravenous Protein Therapy in General Paralysis. J. M. Mackenzie.—p. 223.
*Diagnosis of Coronary Thrombosis: Case. L. Abrahamson.—p. 224.
*Causation of Heart Sounds. G. A. Stephens.—p. 226.
*Treatment of Nursing Mothers with Ultraviolet Rays. C. Chisholm and M. McKillop.—p. 227.
Subacute Yellow Atrophy of Liver. A. Brown.—p. 227.

Coordination of Respiration, Circulation and Bodily Activity.—Douglas states that the quantitative response of the respiratory center which manifests itself in alterations of the volume of air entering and leaving the lungs is primarily to be attributed to the direct stimulus afforded by physicochemical changes in the arterial blood which reaches it, changes which are directly due to the varying metabolism of the different organs of the body. But this response can attain its full value only when its rhythm is influenced by impulses transmitted up the vagus nerves, as the lungs vary in volume, while the coordinated activity of the inspiratory and expiratory muscles is insured by their nervous connection with the respiratory center.

Intravenous Protein Therapy in General Paralysis.—As a result of experience obtained by the study of a series of cases treated by malaria, Mackenzie treated a further series by means of T. A. B. vaccine. Restless and excited paretics have become quiet and easily managed, and considerable physical and mental improvement has occurred in those cases which were not too far advanced in the disease at the commencement of treatment. Several men, formerly slovenly in dress, careless in habits and quarrelsome in nature are now clean, tidy and helping in the routine ward work. No constant change has taken place in the Wassermann reaction in either blood or cerebrospinal fluid. Negative results have been returned on occasion, only to be succeeded by a positive finding later. The colloidal gold test and the globulin and cell content also do not show any constant alteration of particular significance.

Diagnosis of Coronary Thrombosis.—A study of the literature has convinced Abrahamson that even large branches of the coronaries may be occluded without an immediately fatal issue, and that the patient may survive the accident by hours or days, and in a few cases by months or years. In those who survive there is a characteristic clinical syndrome. The patient is usually past middle life and may or may not have experienced previous attacks of angina pectoris. The onset is abrupt, usually with pain of extreme severity and persistence unrelated, as a rule, to food or exertion, and recognized by the patient as unlike any pain previously experienced. The localization varies and may be abdominal. The pain is not relieved by morphine. There are symptoms of shock, with anxiety, cold sweat, collapse, feeble pulse, and low blood pressure. The face is ashen and slightly but variably cyanosed. There are dyspnea, sometimes sudden and urgent; nausea, vomiting, and belching of gas; signs of heart failure, with enlargement of the heart, edema of the lungs and congestion of the liver and kidneys; pericardial friction, inconstant but of extreme diagnostic value; pyrexia and leukocytosis and variation in the electrocardiogram. In the case reported, death occurred on the fourteenth day.

Causation of Heart Sounds.—Stephens considers that the heart sounds are produced by the movements of the pericardial fluid, and not by the contraction of the muscle of the heart. To produce a sound corresponding to the pitch of the normal heart sound at least sixty vibrations a second are required, whereas the heart contracts little more than sixty times a minute. Fluid in a sac can be demonstrated to give rise to sounds exactly resembling those of the heart.

Treatment of Nursing Mothers with Ultraviolet Rays.—An experiment was made by Chisholm and McKillop to see whether ultraviolet radiation was of value in maintaining the milk supply of nursing mothers. The women were exposed three times a week at the distance of one yard from a Hanovia mercury vapor lamp. They were given gradually lengthening periods, from two minutes to half an hour according to the reaction of the patient. Treatment was then continued at the latter rate, or reduced to once a week, according to the progress or needs of the patient. The patients were exposed down to the umbilicus and up to the thighs, the front being exposed half the time and the patient then being turned.

Of the fifty-three women who persisted in treatment, all experienced general benefit. Thirty-six patients were successful in improving or retaining milk supply for prolonged periods.

Medical Journal of Australia, Sydney

2: 37-72 (July 9) 1927

Puerperal and Abortion Sepsis. E. R. White.—p. 38.
Medical Treatment of Peptic Ulcer. O. A. A. Diethelm.—p. 45.
*Mental Symptoms and Postmortem Appearances in Huntington's Chorea. W. A. T. Lind.—p. 53.

Brain Changes in Huntington's Chorea.—In one case of Huntington's chorea examined by Lind, the microscopic changes in the brain and spinal cord were those of nerve cell denegeration and engorgement of dilated vessels without hemorrhages. The postmortem observations in his and others' cases show that Huntington's chorea is not a meningo-encephalitis.

Quarterly J. Exper. Physiology, London

18: 1-98 (July 13) 1927

Influence of Internal Secretions of Ovary on Calcium Blood Level and on Calcium Metabolism. L. Mirvish and L. P. Bosman.—p. 11.
*Effect of Ovarian Extracts on Calcium Blood Level in Man. L. Mirvish and L. P. Bosman.—p. 29.
Effect of Circulation on Electrical Resistance of Skin of Man. H. M. Wells.—p. 33.
*Arneth Count: VII. Experimental Tuberculosis in Rabbit. E. Ponder and K. N. Flint.—p. 45.
Interpretation of Electromyogram from Voluntary and Reflex Contractions. C. P. Richter.—p. 55.
*Arneth Count: VIII. Deflection of Count by Roentgen Rays. W. P. Kennedy and C. A. Grover.—p. 79.
Arneth Count: IX. Relation Between Diapedesis and Nuclear Configuration. E. Ponder.—p. 127.
Effect of Injection of Serum on Heart and Vessels of Cat. E. Ponder.—p. 133.
Mechanism by Which Electrical Resistance of Skin Is Altered. H. B. Densham and H. M. Wells.—p. 175.
Normal Ovarian Cycle in Relation to Estrus Production. F. W. R. Brambell and A. S. Parkes.—p. 185.

Effect of Ovarian Extract on Blood Calcium.—An ovarian extract was prepared by Mirvish and Bosman, which, when administered to animals, produced a fall in blood calcium. The active principle has been found to be present in extracts of liquor folliculi, residual ovary, and corpus luteum. It is also present in placenta. The fall in blood calcium amounts in typical cases to 35 per cent of the normal value. The blood calcium cannot generally be reduced any lower than this by increasing or repeating the dose. The maximum fall in blood calcium is usually produced in about twenty-four hours, and it returns to normal in forty-eight hours. The action of the hormone on the blood calcium is the same in the two sexes. The extract is active when administered subcutaneously or intraperitoneally. It is also active on oral administration when the dose is considerably increased. The action of the ovarian hormone of the blood calcium is suggested as a means for standardization. It is suggested that the mode of action of the ovarian hormone is by influencing other endocrine glands.

Arneth Count in Experimental Tuberculosis.—Ponder and Flint assert that in experimental tuberculosis in the rabbit there is a left-handed deflection of the Arneth count, as occurs in the disease in man. There is some evidence for believing that this deflected state is brought about in the first instance by a liberation of cells of class I from the marrow, but afterward maintained by an increased removal from the blood stream of the cells of the higher classes. The injection of tuberculin into a tuberculous rabbit has an effect comparable with the injection of thyroid into a normal rabbit. The marrow liberates cells of class I, which in the course of time develop into cells of the higher classes.

Effect of Roentgen Rays on Arneth Count.—By means of a single exposure to roentgen rays, Kennedy and Grover were able to deflect the Arneth count of rabbits, a large number of cells of class I and a smaller number of cells of class II being introduced into the circulation. Three graduated penetrations were used; the largest produced the greatest deflection, but the smallest penetration produced a greater deflection than did the intermediate.

Bulletin de l'Académie de Médecine, Paris

98: 29-56 (July 12) 1927

*Cerebral Radio-Arteriography. E. Moniz.—p. 40.
Scoliosis of Adolescents. J. Gourdon.—p. 45.
Action of Radium on Vegetable Cells. A. Sartory et al.—p. 52.

Cerebral Radio-Arteriography.—Moniz undertook to make the encephalic arteries opaque to roentgen rays by introducing into them, by way of the carotids, substances more impermeable to the rays than is the skull. At the moment of making the injection, the internal carotid is temporarily ligated so as to avoid an immediate dilution of the solution. Injections of a 25 per cent solution of sodium iodide were made into the internal carotids of three patients. Errors in technic limited the success in radiography to one case. The patients were given injections of morphine, combined with atropine, before the injection. Stereoscopic radiography may be possible.

Presse Médicale, Paris

35: 881-896 (July 13) 1927

*Removal of Cervical Glands in Cancer of Tongue. J. L. Roux-Berger.—p. 881.
Thoracic Injuries as Causes of Pulmonary Tuberculosis. Hinault and Moralis.—p. 883.
Children That Should Not Be Hospitalized. E. Apert.—p. 891.

Removal of Cervical Glands in Cancer of Tongue.—Operation should include removal of glands in the submaxillary and carotid regions and also the fat in the infraclavicular depression. Bilateral operation is not indicated except for cancer at the tip of the tongue. In that case, the extensive operation, which includes the excision of the sternocleidomastoid muscle and the internal jugular vein, should be done on one side, and on the other side intervention should be limited to opening the carotid region and removing the glands. The author performed fifty-five of the operations, forty-five for adenopathies secondary to a cancer of the tongue. In thirty-four of these forty-five, the ablation was thorough. Local anesthesia was used, with few exceptions. There were six postoperative deaths. The other patients recovered without incident.

35: 897-912 (July 16) 1927

*Mycotic Splenomegalies. P. Émile-Weil et al.—p. 897.
Public Health Services in Brazil. C. Fraga.—p. 907.

Clinical Forms of Mycotic Splenomegalies.—Mycotic splenomegalies constitute a veritable clinical entity, the etiology and pathogenesis of which are still undetermined. They seem to be the most frequent of the primary splenomegalies. Clinically they appear as splenic enlargement alone or with digestive tract hemorrhages, as splenic enlargement with jaundice, anemia or with polycythemia, or with ascites and cirrhotic lesions of the liver, that is to say, with all the symptoms of primary splenomegaly. This idea necessitates a complete reordering of the etiologic conception of primary splenomegalies in general and of Banti's disease in particular. The diagnosis of these mycotic splenomegalies, which is today anatomically and microscopically easy, can be made clinically only by elimination of splenic lesions of recognizable etiology. The treatment consists essentially of splenectomy, done as early as possible, before the setting in of complications, which bring on deterioration of the general condition and cause a fatal issue. If an enlarged mycotic spleen is recognized early, potassium iodide in large doses (from 4 to 8 Gm. per day) may be given.

Progrès Médical, Paris

53: 977-1024 (June 25) 1927

*Normal Appetite and Bulimia in Cancer of Stomach. P. Le Noir and R. Liège.—p. 985.

Appetite in Cancer of Stomach.—Le Noir and Liège report a case of cancer of the stomach in a man, aged 66, in whom an exaggerated appetite (bulimia) was one of the dominant symptoms. The condition is rare. By far the majority of patients with cancer of the stomach suffer from anorexia, though a considerable number retain or regain a normal appetite.

Schweizerische medizinische Wochenschrift, Basel

57: 705-728 (July 23) 1927

Tuberculosis Patients in Switzerland. W. Behrens.—p. 705.
*Erythema Nodosum. R. Massini.—p. 708.
Regulation of Expectoration in Tuberculosis. T. Sternberg.—p. 713.
"Sanocrysin" in Pulmonary Tuberculosis. F. L. de Muralt and P. Weiller.—p. 714.
Pathogenesis of Bronchiectasis. V. Mikulowski.—p. 717.

Erythema Nodosum.—A virus as the causative agent of the disease has not been found, nor can the etiology be established with certainty from the clinical manifestations, but Massini's researches support the idea of a relationship to tuberculosis.

57: 729-752 (July 30) 1927

*Duration of Pregnancy. A. Labhardt.—p. 729.
Goiter Prophylaxis. A. Oswald.—p. 731.
Light and Rickets. E. Glanzmann.—p. 735.
*Permanent Results of Antethoracic Esophagoplasty. A. Fonio.—p. 743.
Smallpox Epidemic in Geneva in 1926. T. Reh.—p. 744.

Duration of Pregnancy.—The only basis in any degree dependable for the reckoning of the duration of pregnancy or the date of conception, in individual cases, is the length of the child. Labhardt arrived at the average length of the child, by collecting figures for 6,867 children, taking into account the first day of the last menstruation. Up to 49 cm., the absolute number of girls is greater, while at 50 cm. and above, boys predominate. To arrive at the same average length, girls take three days longer than boys. Probability tables are given. In the supposed case of a boy (50 cm. in length) born December 10, the physician, called to court, can by consulting one of these tables state that the child was probably conceived March 12 (the average duration of pregnancy for a boy 50 cm. long at birth being 273 days). If the supposed father of the child had intercourse with the mother February 20, then, by consulting the same table, the physician can say that the probability of his fatherhood is 5.13 per cent. In some cases the blood group may be used to support the deductions from the tables.

Permanent Result of Antethoracic Esophagoplasty.—In 1921, the author performed an antethoracic esophagoplasty on a patient who had atresia of the esophagus in the upper part, due to ingestion of potassium permanganate ten years earlier. After many complicating disturbances, a gastric fistula was made, and through this the patient received nourishment for ten years. After the esophagoplasty she could swallow solid as well as liquid food. At the end of 1921, a goiter, which interfered with swallowing, was removed, and at the same time the opening into the esophageal skin tube was widened. Deglutition was again perfect. In 1924 the gastric fistula was closed. At present the patient swallows liquids and solid food with ease.

57: 753-776 (Aug. 6) 1927

Learning to See After Late Operation for Congenital Blindness. A. Vogt.—p. 753.
Glycogen Content of Liver in Diabetes Mellitus After Insulin Treatment. A. Dick.—p. 755.
*Blood Sugar After Quartz Lamp Irradiation. N. Messerle.—p. 759.
*Radium Therapy of Cancer. O. Schürch.—p. 761.
Micro-Examination in Sedimentation of Erythrocytes. J. Stephani.—p. 765.

Behavior of Blood Sugar After Ultraviolet Irradiation.—Messerle found that, in aged persons, sun baths and ultraviolet irradiation caused an increase of the blood sugar values and a greater increase and a longer duration of the alimentary hyperglycemia consequent on ingestion of 20 Gm. of dextrose (fasting). The sun baths and irradiations intensified the cutaneous epinephrine reaction and the effect on the wheal was still evident after twenty hours.

Radium Treatment of Cancer.—Schürch believes that it is usually best to use radium and radium emanation side by side. The Shuys method, which employs only beta rays, is, he says, of no practical importance.

Arch. Esp. de Enf. del Aparato Digestivo, Madrid

10: 385-448 (July) 1927

*Almond Emulsion. J. Sandoval Amorós.—p. 390.

Almond Emulsion in Dietetics.—One of the favorite Spanish summer drinks, orgeat or almond emulsion, has been found very useful by Sandoval as a fatty, hypotoxic, hyponitrogenous heat-producing food. It can be used alone for several days and also combined or in alternation with milk and broths in all infectious diseases. It is valuable in gastric disease, ulcer and several intestinal, hepatic and renal conditions. It also proves a boon in cases of intolerance to milk. The emulsion is prepared by grinding a certain amount of sweet almonds with a few bitter ones and sugar. The product is mixed with water and then filtered. The process is repeated several times so that the water may take up the nutritive value of the almonds. The resulting white liquid is the orgeat. It may be concentrated by boiling.

Archivos de Medicina, Cirugía y Espec., Madrid

27: 85-112 (July 23) 1927

*Insulin in Postoperative Acidosis. P. de Sala and E. Villalobos.—p. 85.
Id. L. Urrutia.—p. 87.
Case of Primary Cancer of Liver. A. Duque and M. Moya.—p. 88.
Metastatic Ophthalmia. G. Poulard.—p. 90.
Venous Pressure. A. Crespo Alvarez and L. de Velasco.—p. 92.

Insulin in Treatment of Severe Postoperative Acidosis.—Urrutia takes issue with those who assert that cases of postoperative acidosis should be treated with insulin only when the alkali reserve is not decreased. The case described and one reported previously prove that insulin is of value in acidosis with ketosis and in acidosis with decreased alkali reserve.

Arq. da Escola Med.-Cirurg. de Nova Goa

1: 1-56, 1927. Partial Index

Intestinal Parasitosis in Portuguese India. F. de Mello.—p. 1.
Blood Cell Resistance Among Goa Natives. M. Velose and C. de Sousa.—p. 49.
*History of Medicine in Portuguese India. P. Pissurlencar.—p. 61.

Early Portuguese Physicians in India.—Old documents show the prestige enjoyed by Portuguese physicians in earlier times in India. Garcia de Orta, the viceroy's physician and author of the famous "Coloquios dos Simples e Drogas Medicinais" (1563), was made to stay for a long time at the court of Buhram Nizam Shah at Ahmadnagar. His book brought to Western attention a number of hitherto unknown medicinal plants. Fernão Lopes de Orta was also invited to Bijapur to treat the ruler Ibrahim Adil Shah, but when the patient died (1627), he was promptly thrown into prison, his nose and one ear were cut off, and his son and a black maid were taken away from him. He was freed through the efforts of the Portuguese viceroy, whose spy he had been.

Ars Medica, Barcelona

3: 173-212 (June) 1927

*Diagnosis of Gastric Cancer. E. Echevarria Martinez.—p. 173.
Dystopic Kidney. J. M. Reverter.—p. 181.
Significance of Vomiting in Children. A. P. Albert.—p. 183.
Etiology of Postvaccinal Encephalopathy. C. Levaditi et al.—p. 193.
Acute Gout. R. C. Voltá.—p. 201.

Wolff-Junghans Test for Gastric Cancer.—The personal experience of the author in eighty-two clinical cases (twenty-five cancers and fifty-seven noncancerous lesions), shows that the result of the Wolff-Junghans test is, for diagnostic purposes, as good as or better than any other symptom and that values from 200 to 400 can be considered positive for cancer; those lower than 100 as negative, and those from 100 to 200 as doubtful.

Brasil-Medico, Rio de Janeiro

41: 743-772 (July 23) 1927

*Lipoid Vaccine. V. Brazil and J. Vellard.—p. 743.
Periduodenitis. A. Valerio.—p. 751.
*Pathogenesis of Malaria. A. L. Pimenta Bueno.—p. 753.
Pseudo-Poliomyelitis. A. Lellis.—p. 754.

Lipoid Vaccines.—Brazil and Vellard point out that lipoids both from normal blood serum and from the liver, after purification, exhibit the same powers on bacterial toxins, snake poisons and bacteria. They fix and modify poisons and attenuate the virulence of bacteria. The identity of lipoids in the blood and liver shows the important defensive rôle assigned to the liver against poisonings and infections. In the action of such lipoids on toxins, two phases must be differentiated:

fixation and modification. The modifying power of lipoids may be used profitably in preparing vaccines of toxic origin. This power was employed successfully in making an anthrax vaccine which protected rabbits. It can also be extended to other bacterial vaccines.

Pathogenesis and Treatment of Malaria.—Pimenta asserts that the malarial attack is the expression of a disturbance in the tonus of the vagosympathetic nervous system. An increased tonus restores the balance. Quinine and methylene blue, which control the attack, act in a sympathicomimetic capacity.

Clínica, Montevideo

5: 35-53 (May) 1927

*Amyloid Degeneration Following Osteomyelitis. A. Rodríguez Castro and A. Volpe.—p. 35.

Amyloid Degeneration Following Multiple Osteomyelitis.—A girl, aged 8, was admitted to the hospital with multiple osteomyelitis. The surgical treatment was begun, but the patient was removed, against advice, with some foci still suppurating. Two years afterward, the child returned with amyloid degeneration, which eventually led to cachexia and death. This is the first case of amyloid degeneration recorded in the Pereira Rossell Hospital in the fifteen years it has been open.

Arch. f. klin. Chirurgie, Berlin

146: 301-650 (June 18) 1927

*Immunizing Process Against Streptococci and Staphylococci. W. Löhr.—p. 301.
Establishment of Internal Gallbladder Fistulas. K. Hutter.—p. 332.
Bad Effects from Blood Transfusion. H. Bürkle-de la Camp.—p. 363.
Is There an Antipepsin? P. Schmuziger.—p. 372.
Alcohol in Surgery of Nerves. W. I. Rasumowsky.—p. 389.
Action of Roentgen Rays in Bacterial Inflammations. W. Schaefer.—p. 394.
Metabolic Changes in Wound Healing. S. Kumanomidoh.—p. 403.
Removal of Foreign Bodies from Esophagus by Gastrotomy. J. Majanz.—p. 413.
*Pain Conduction in Arteries of Extremities. A. A. Abrashanow.—p. 420.
Periosteum in Reduction of Bone Fractures. H. Koch.—p. 425.
Question of Operation for Cleft Palate. W. Deubner.—p. 430.
Autoplastic Free Transplantation of Fascia and Aponeurosis. R. Göbell.—p. 462.
Microscopic Observations in Necrosis of the Semilunar Bone. E. Gold and A. Winkelbauer.—p. 510.
*Hemostasis in Skull Trepanation and Sinus Injury. A. S. Wischnewski.—p. 544.
*Interruption of Heart Action. H. Fischer.—p. 550.
Surgical Treatment of Epilepsy. H. Fischer.—p. 562.
Healing Tendency of Gastric Ulcer. V. Hoffmann.—p. 570.
Bone Regeneration. E. Büsch.—p. 586.
Davis's Cancer Reaction. W. E. Jolkwer and W. J. Matschan.—p. 593.
Movable Round Pedicle in Plastic Operations on Face. W. P. Filatow.—p. 609.
Moistening Arteries with Alcohol as Substitute for Periarterial Sympathectomy. N. Nasaroff.—p. 615.
Decomposition in Fractured Bones. F. König.—p. 624.
Naevus Pigmentosus of Scalp in Form of Cutis Capitis Gyrata. P. Gohrbandt.—p. 644.
Osteomyelitis of Cervical Rib. E. Haim.—p. 649.

Immunization Against Streptococci and Staphylococci.—The results of Löhr's animal experiments show that the antigenic influence of streptococci killed by hydrochloric acid is hardly less than that of living streptococci inactivated by hydrochloric acid.

Pain Conduction in Arteries: Explanation of Phenomena of Periarterial Sympathectomy.—Experimenting on dogs, Abrashanow found that sensibility was retained in the wall of the femoral artery after division of the sciatic and femoral nerves. He concludes that in the walls of the arteries of the extremities there exist long paths for the sense of pain, which are independent of the nerve branches that approach the artery from the spinal nerves. The presence of such paths sufficiently explains the phenomena following sympathectomy.

Hemostasis in Skull Trepanation and Sinus Injury.—In trepanations directly over the sagittal sinus in dogs, Wischnewski was able to stop or greatly diminish hemorrhage from the bone wound by withdrawal of cerebrospinal fluid (from 3 to 5 cc. or more in a dog weighing from 13 to 15 Kg.). If the fluid was reinjected, bleeding began again. The applicability of the method to clinical surgery is being studied. Already it has been used successfully in two cases.

Interruption of Heart Action.—Fischer calls attention to the injury to the central nervous system and other organs that follows prolonged interruption of the circulation. Since the injury to the brain is accompanied by increased intracranial pressure, lumbar or suboccipital puncture is advisable. Restoration of heart beat and respiration after fifteen minutes' cessation during operation was followed, in one of his patients, by tonic and clonic spasms, which were relieved by lumbar puncture. The urine contained granular casts and albumin. Though the patient regained consciousness, she died the next day from gradual failure of the circulation. At necropsy, microscopic and macroscopic hemorrhages were found in the brain.

Deutsche med. Wochenschr., Berlin

53: 1291-1330 (July 29) 1927

Marburg Medical Faculty Since 1866. Bonhoff.—p. 1291.
New Children's Clinic in Marburg. E. Freudenberg.—p. 1294.
New Otorhinolaryngologic Clinic in Marburg. W. Uffenorde.—p. 1295.
Koemis Koetjing, the Indian Kidney Tea. A. Gürber.—p. 1299.
Pemphigus Vegetans. A. E. Ruete.—p. 1301.
*Foreign Protein Body in Placenta. E. Schwarzkopf and H. Sievers.—p. 1303.
Clinical Value of Functional Pathology. G. von Bergmann.—p. 1304.
Fasting as Therapeutic Measure. W. Arnoldi.—p. 1309.

Foreign Protein Body in Placenta in Pregnancy Nephrosis.—In a pregnancy nephrosis a foreign protein body was found in the placenta which resembled the protein body first described by Bence-Jones. On subcutaneous injection of 1 cc. of the placental extract into a white rat, no pathologic manifestations occurred.

53: 1375-1414 (Aug. 12) 1927

Operations in Rachitic Bone Deformities. A. Nehrkorn.—p. 1378.
Plasmochin in Treatment of Human Malaria. O. Fischer and W. Weise.—p. 1380.
*Exohysteropexy for Vaginal Prolapse. E. Hempel.—p. 1382.
*Differential Diagnosis Between Paratyphoid B Infection and Appendicitis. J. Enkling.—p. 1384.
*Diagnostic Value of Palate Examination. P. Neuda.—p. 1386.
Dietetics of Decomposition. E. Rominger.—p. 1387. C'tn.
Hemorrhoids. H. Strauss.—p. 1391.
Jessen's Method of Simultaneous Staining of Tubercle Bacilli and Elastic Fibers. H. Simchowitz.—p. 1392.
Reagents for Medical Examinations. M. Piorkowski.—p. 1392.
Contrivance for Holding Plate Holder in Making Roentgenograms of Upright Patient. W. Neuhaus.—p. 1393.

Exohysteropexy According to Kocher for Suppressing Complete Vaginal Prolapse in Older Women.—Hempel performed fifty-one operations for vaginal prolapse according to the Kocher procedure. He sutures the body of the uterus to the entire thickness of the abdominal wall with silk and places the uterus over the pubic symphysis. The lower wall of the body of the uterus lies close to the pubic symphysis and thus the uterus is more or less protected from the strains and pressures of the abdominal cavity. This dependable fastening makes for a firm scar and the uterus does not slip back again. There were no deaths in the series. Of the fifty-one women, forty-one had passed the menopause (being from 45 to 69 years of age) and nine were close to it. In forty-one cases exohysteropexy was used alone, in ten it was combined with anterior and posterior colporraphy.

Differential Diagnosis Between Paratyphoid B Infection and Appendicitis.—Paratyphoid has an acute onset, and the clinical picture may resemble appendicitis. Difficulties of differential diagnosis are virtually solved by blood examination. The total leukocyte count did not, in any case examined, rise above 12,000. In the qualitative blood picture, lymphocytosis associated with shifting to the left, and, proportionately, an extremely small number of young cells speak for paratyphoid. These conclusions are based on the observation of seventy-five cases.

Diagnostic Value of Examination of Palate.—Changes in the color, outline, blood, water and fat content of the soft palate, especially where it joins the hard palate, are valuable diagnostic signs in many diseases. In cholecystitis or cholelithiasis, the soft palate (especially the angles at the sides) is yellow. In disease of the liver, the yellow tinge is much more diffuse and the apparent fat content is increased. Diffuse hyperemia of the soft palate is present in duodenal

ulcer or in any developmental anomaly in which there is a pointed-arch palate. Anemia of the palate is characteristic of pulmonary tuberculosis and of cancer. In the former, there is marked poverty of fat in the soft palate (except in miliary tuberculosis, when it is increased), while in the latter the fat is increased. In syphilitic hepatitis also there are disturbances of fat metabolism but not a general anemia. In constitutional syphilis, there is usually a spotted hyperemia. An illustrative case is reported.

Fortschritte d. Medizin, Berlin

45: 163-190 (Aug. 19) 1927

*Peristolic Function of Stomach in Origin and Treatment of Habitual Pylorospastic Vomiting in Infancy. B. Epstein.—p. 163.
Fight Against Whooping Cough. W. Lewy.—p. 187.
Symptomatic Therapy of Chronic Intestinal Disturbances at Puberty. K. Barchetti.—p. 188.
Diet in Physician's Practice. Gehrmann.—p. 189.
Combined Internal and External Use of Yeast. Kühne.—p. 190.

Significance of Peristolic Function of Stomach for Origin and Treatment of Habitual Pylorospastic Vomiting of Infancy.—The peristole is lacking in infancy and first appears with the giving of semisolid food. The peristolic function, doubtless induced by the taking of soft foods, enables the stomach, through tonic embrace, to cling to its contents and hence makes difficult a rise of the ingesta. It checks aerophagy, which is favorable to the onset of habitual vomiting, and it pushes the air contained in the stomach into the upper segments, thus forming an air-space between stomach contents and cardia. This dulls the effect of pressure or shock on the cardia and hence reduces the tendency of the stomach to open toward the esophagus.

Münchener medizinische Wochenschrift, Munich

74: 1263-1304 (July 29) 1927

Antagonism Between Causative Agent and Organism Attacked. W. Stoeltzner.—p. 1263.
Myxedema and Rickets. P. Frick and A. Uffenheimer.—p. 1265.
Destruction of Homogeneous Erythrocytes in Guinea-Pig. G. Tudoranu.—p. 1266.
*Value of Roentgenograms of Gallbladder. A. Grebe.—p. 1269.
*Trommer's Diagnosis of Duodenal Ulcer. V. Ein Waldt.—p. 1269.
Medico-Mechanical Method of Inducing Labor Pains. K. Hellmuth.—p. 1272.
*Dietetic and Therapeutic Value of Killed Yeast. M. Winckel.—p. 1274.
Psychocathartic Cure of Monosymptomatic Phobia. H. Stern.—p. 1275.
*Acriflavine in Polyarthritis Rheumatica. F. Lachner.—p. 1276.
Behavior of Skeletal Musculature in Chill. E. F. Müller and W. F. Petersen.—p. 1276.
Epidemiology of Typhoid. E. Friedberger.—p. 1280.
Rheumatic Diseases. A. Zimmer.—p. 1285.

Diagnostic Value of Roentgenograms of Gallbladder.—Grebe, testing the value of roentgenograms of the gallbladder in 382 cases, found that in a wide range of abdominal disturbances, a shadow was lacking or was at least indistinct sixteen hours, on the average, after the ingestion of the contrast medium, although at the operation no immediate involvement of the gallbladder system could be demonstrated. Nevertheless, he believes that the procedure is a valuable diagnostic aid.

Trommer's Method of Diagnosing Duodenal Ulcer.—Ein Waldt's examination of the duodenal fluid did not reveal characteristic evidence of duodenal ulcer in any of the five cases of clinically certain duodenal ulcer nor in the three cases in which duodenal ulcer was suspected. Examination of the duodenal contents is, therefore, only a supplementary procedure.

Dietetic and Therapeutic Value of Killed Yeast.—Winckel's researches have led him to the conclusion that killed yeast has a greater dietetic and therapeutic value than living or fermentative yeast. The chief dietetic value lies in the vitamins, which are best preserved in a killed dry yeast prepared by the vacuum process.

Acriflavine in Polyarthritis Rheumatica.—In numerous cases of polyarthritis, Lachner employed in every stage, with and without heart complications, a 2 per cent acriflavine solution intravenously, in doses of 1 cc., daily or every other day. He did not use any other remedy. The results were good, both subjectively and objectively.

Wiener klin. Wochenschr., Vienna

40: 989-1016 (Aug. 4) 1927

Treatment of Angina Pectoris by Anterior Ramicotomy. R. Singer.—p. 989.
Erythema Neonatorum Toxicum and General Allergy of New-Born. E. Mayerhofer and M. Krajnovic-Lypolt.—p. 991.
*Acute Appendicitis in Aged. H. Lehmann.—p. 995.
*Treatment of Suppurative Peritonitis. A. Kittinger.—p. 997.
*Case of Nitrobenzene Poisoning. H. Schnopfhagen.—p. 998.
*Gastric Syphilis. K. Herman.—p. 1000.
Case of Angina. K. Tschiassny.—p. 1003.
Medical Philosophy. P. Gerber.—p. 1003.

Acute Appendicitis in Aged.—Lehmann emphasizes that while acute appendicitis in the aged is relatively rare, the diagnostician must rule out this lesion in the presence of disturbances in the right lower quadrant, for only the earliest operative intervention will, at times, protect the patient against the gravest complications. Only thus can the high mortality of appendicitis in the aged be lowered and grave attacks of peritonitis, in which a later operation is sure to end fatally, be forestalled.

Treatment of Suppurative Peritonitis.—Kittinger reports his further experiences with intraperitoneal injections of bacterial culture filtrates (antivirus) in twenty-six cases of acute appendicitis, which at operation presented a gangrenous condition or a perforation of the appendix, with local or more extensive peritonitis. There was always evidence of fibrin formation and the pus was yellowish green, mixed with friable solid particles, the picture of a degenerative process already far advanced. After the operation, the abdominal cavity (especially the small pelvis) was subjected to lavage, and then from 50 to 150 cc. of antivirus was injected and the abdomen was closed by primary suture. The results were excellent, no fatalities occurring.

Case of Nitrobenzene Poisoning.—Schnopfhagen's patient, aged 20, drank an unknown quantity of nitrobenzene, hoping to induce abortion in the third month of pregnancy. At necropsy, evidence of abortion was not found. Death occurred in twenty-six hours, after blood transfusion (800 cc.) had brought great relief, restoring normal breathing and dispelling cyanosis. Examination of the blood, which was very thick, of a chocolate brown color and coagulated immediately, furnished the key to the differential diagnosis and pointed away from hydrocyanic acid and morphine as the cause of the poisoning. There is a wide individual difference in the lethal dose of nitrobenzene, which ranges from 8 drops to 35 Gm. Schnopfhagen recommends that nitrobenzene be added to the list of poisons that may be bought only on prescription.

Syphilis of Stomach.—Herman stresses the need of early diagnosis in syphilis of the stomach, which is an exceedingly rare condition. In the literature many cases have been reported, but it is doubtful whether they are all genuine. An ordinary gastric disease in a syphilitic person occurs frequently, but coincidence does not by any means establish the identity of the two processes. Gastric syphilis may be differentiated from cancer by the relatively favorable clinical symptoms, absence of cachexia and bleeding, and improvement following antisyphilitic treatment. Herman's patient responded readily to arsphenamine treatment. The Wassermann tests (stomach contents) have been repeatedly negative. The patient has gained more than twenty pounds in weight, and feels absolutely well.

Zeitschrift für Tuberkulose, Leipzig

48: 1-96 (May) 1927

*Droplets and Dust in Spread of Tuberculosis. F. Neufeld.—p. 1.
*Tuberculosis Research. A. Sata.—p. 6.
Serum Changes in Tuberculosis. J. v. Darányi.—p. 30.
*Malaria Treatment in Tuberculosis. O. Weselko.—p. 33.
Urochromogen, Diazo Reaction, Blood Picture and Blood Sedimentation in Pulmonary Tuberculosis. M. Heinrichs.—p. 36.

Droplets and Dust in Spread of Tuberculosis.—Neufeld draws attention to the fact that particles of sputum, as well as cough droplets, reach clothing, linen, beds and upholstery as well as dusty sidewalks. Through beating, shaking, brushing and sweeping, bacillus-bearing dust or free bacilli are sent through the air; these present an important danger to the well, especially children, who move about in this atmos-

phere. Experiments have shown that the minimal dose for pulmonary infection by the inhalation route, is considerably smaller than in the case of infection by food. Moreover, the pulmonary infection led with greater certainty to an acute, steadily advancing, fatal infection—while by the food route (except in enormous doses)—as also with infection of the nose and conjunctiva—only a certain number of the animals became sick. Of these, some died. In many, the disease ran a short, mild course.

Tuberculosis Research.—Sata holds that superinfection and reinfection with human tuberculosis plays an important part in the development of typical phthises. Early, repeated, slight infections, with minimal quantities of tubercle bacilli, have also been important in the development of human phthisis at a more advanced age. Seven series of experiments are described and the results are tabulated.

Can Tuberculosis Be Influenced by Malaria Treatment?—Weselko is convinced that tuberculosis is influenced by malaria treatment, but the method does not act as an irritation therapy. The result of the treatment is lasting and depends either on the toxic action of the malaria plasmodium or on the fact that the malaria toxins paralyze the toxins of tuberculosis and thus the body is made able to resist the latter.

Zentralbl. f. Chirurgie, Leipzig

54: 1665-1728 (July 2) 1927

*Tyroid Transplantation by Injection. H. Kurtzahn and H. Hübener.—p. 1666.
New Bladder Fistula Bandage. O. Hennig.—p. 1669.
Bilateral Cavernous Lymphangioma of Neck. G. von Herepey-Csábányi.—p. 1672.
Modification of Rectoscope. W. Haas.—p. 1673.
Hair Balls in Stomach. O. Ormai.—p. 1675.
New Upper Arm Splint. E. Stahnke.—p. 1676.
Makai's Autopyotherapy. M. Havránek.—p. 1683.
*Postoperative Nondiabetic Acidosis. W. Fickenwirth.—p. 1685.
Chronic Encapsulated Fibrous Peritonitis. L. Jósa.—p. 1689.
"Palliative Resection in Peptic Jejunal Ulcer." H. Flörcken.—p. 1694.
"Diagnostic Value of Paravertebral Anesthesia." H. Kehl.—p. 1695.

Thyroid Transplantation by Injection.—In two of three myxedematous cretins, prompt physical and mental improvement followed intramuscular injection of from 4 to 5 cc. of fresh thyroid tissue pulp. Kurtzahn and Hübener do not claim lasting results; the advantage of the method is that the procedure can easily be repeated as needed.

Postoperative Nondiabetic Acidosis.—Fickenwirth recommends a diet rich in vitamins as a prophylactic measure. He did not find preoperative treatment with glucose successful.

54: 1729-1792 (July 9) 1927

Treatment of Varicose Veins with Sugar Injection and Venous Ligation. L. Moszkowicz.—p. 1732.
Artificial Bladder. B. M. Garmsen.—p. 1736.
*Surgical Approach to Base of Skull. D. Simont.—p. 1741.
Fabella. H. Pick.—p. 1743.
New Methods of Radical Uranoplasty. A. Limberg.—p. 1745.
Sterile Handling of Ethyl Chloride. W. F. Katzenstein.—p. 1751.
Treatment of Progressive Phlegmons of Upper Extremity. L. Peritz.—p. 1752.
*Danger in Abdominal Puncture. F. Partsch.—p. 1755.
Subcutaneous Abdominal Hernia Simulating Hematoma. H. M. Hinrichsen.—p. 1757.

Modification in Operative Approach to Base of Skull.—The method proposed by Simont and practiced successfully by him on two occasions consists of wide resection of the lateral and medial wall of Highmore's antrum, with partial resection of the posterior portion of the wall of the nasal septum, removal of the nasal process and division of the hard palate in the middle line into two halves, one of which, corresponding to the opened Highmore antrum, hangs down as a flap in the buccal cavity. This osteoplastic flap remains in connection with the soft palate, the mucous membrane and the periosteum of the lateral wall of Highmore's antrum. The chief advantage of the method, as compared with total resection of the upper jaw, is the lessened danger of hemorrhage and the absence of cosmetic defects.

Danger in Abdominal Puncture.—Danger of injuring the internal organs in puncturing the abdomen is not altogether obviated by using Goetze's needle with mandrin. Partsch quotes a case in which the attempt to establish pneumoperitoneum led to death from air embolism. The needle had pierced the liver, which was not in its normal position. He recommends that the patient lie on the side, with pelvis raised, during the operation, and that carbonic acid mixtures or nitrous oxide be used, since these gases are more readily absorbed from the circulation than are air or oxygen.

54: 1857-1920 (July 23) 1927

Treatment of Prostatic Hypertrophy and Carcinoma with Pregl's Solution Plus Pepsin. E. Payr.—p. 1858.
*Treatment of Hydrocephalus by Ureterodural Anastomosis. B. Heile.—p. 1859.
Ulcer Carcinoma in Young. C. Hammesfahr.—p. 1864.
Gas Gangrene as Sequela of Erysipelas. K. Marcuse.—p. 1867.
So-Called Gas Peritonitis. K. Michejda.—p. 1871.
Self-Inflicted Fistula of Small Intestine. W. Birkenfeld.—p. 1875.
*Gynecologic Sign Speaking Against Appendicitis. E. Sachs.—p. 1878.
Surgical Treatment of Local Hyperhidrosis. W. I. Dobrotworski.—p. 1881.
Roentgenostereograms with Bucky-Potter Diaphragm. O. Hahn.—p. 1883.

Treatment of Hydrocephalus with Ureterodural (Spinalis) Anastomosis.—Heile has applied this treatment in two more cases, making three in all. One child died of pneumothorax resulting from injury to the costal pleura during the operation. In the others the procedure was successful. The method is suited only to cases of nonresorptive communicating hydrocephalus. The ureter is sutured into an opening in the dura.

Gynecologic Sign Speaking Against Appendicitis.—Sachs takes an opposite view to that of Sellheim (previously reported in these columns) as to the significance of painful thickening of the Douglas folds on the right side (noted on rectal examination). He holds that this sign indicates a gynecologic lesion and not appendicitis.

Zentralbl. f. Gynäkologie, Leipzig

51: 1689-1752 (July 2) 1927

*Function of Corpus Luteum. R. Meyer.—p. 1690.
Aberrant Endometrium. J. Koerner.—p. 1702.
*Is Menstruation Necessary to Women's Health? R. Köhler.—p. 1707.
Ligation of Vena Cava in Puerperal Pyemia. L. Koch.—p. 1713.
Danger from Ergotomin Tartrate in Neurospastic Diathesis. E. Heyer.—p. 1718.
Relationship of Planum Occipitobregmaticale in New-Born to High Position. E. Lork.—p. 1722.
Hypogenitalism in Woman. P. Sippel.—p. 1725.
Secondary Abdominal Pregnancy. E. Zuckermann.—p. 1730.
Bacillus Pyocyaneus Infection. H. Reichenmiller.—p. 1732.

Function of Corpus Luteum.—The appearance of degeneration in the central portion of the corpus luteum in the fourth week of the menstrual cycle is, Meyer states, the first sign of cessation of activity of a dying, unimpregnated ovum. The capacity of the cell to become fertilized probably came to an end a few days previously. Visible drops of fat in the corpus luteum indicate that the cells concerned have lost their hormonal function. He holds that the ovum is responsible for the periodicity of the ovarian function and that the influence of the anterior lobe of the pituitary is merely trophic. He does not believe in a qualitatively changed hormone as responsible for myoma, adenomyohyperplasia, etc.

Is Menstruation Necessary to the Health of the Woman?—Köhler states that the leading gynecologists of Vienna are unanimous in regarding as unproven Aschner's theory that deleterious changes take place in the blood as a consequence of hysterectomy or of amenorrhea from other causes.

51: 1753-1816 (July 9) 1927

*Treatment of Eclampsia. E. Waldstein.—p. 1754.
Eclampsia in Mother and Child. E. Schwarzkopf.—p. 1771.
*Id. H. Loebel.—p. 1775.
Almost Symptomless Rupture of Uterus in Old Cesarean Section Scar. P. vom Dahl.—p. 1777.
Value of Palpation of Child's Chin in Delivery. R. Müllerheim.—p. 1780.
Partial Symphysectomy; One Hundred Cases. R. Costa.—p. 1785.
Too Infrequent and Too Scanty Menstruation. R. König.—p. 1789.
Adhesions of Uterine Cervix After Curettage. R. Geinitz.—p. 1793.
*Alcohol Treatment of Puerperal Sepsis. H. Thomson.—p. 1795.

Treatment of Eclampsia.—In Waldstein's clinic the total mortality in 117 cases of eclampsia was 1.7 per cent. If diet fails to prevent oliguria, headache and ocular symptoms in the preeclamptic condition, venesection or delivery are carried out. In eclampsia at the end of pregnancy and at the begin-

ning of the first stage of labor, cesarean section is the method of choice. If the first stage is well advanced, and the condition is not growing worse, he waits until delivery by the vagina is possible. Then it is hastened as much as possible. If attacks occur after delivery, he performs two or three venesections, withdrawing a total of from 1,000 to 1,500 cc. of blood. He follows venesection with infusion of sodium chloride. Phenobarbital is given to all eclamptic patients (not more than three doses of 0.3 Gm. each in twenty-four hours).

Eclampsia in Mother and Child.—Loebel reports a case of eclampsia in the new-born child of an eclamptic mother, who was delivered by cesarean section. The last named fact makes this case, he believes, unique in the literature.

Alcohol Treatment of Puerperal Sepsis.—Good results were observed by Thomson. The doses of wine and brandy must be large enough to produce intoxication. The treatment is begun as soon as signs of infection appear.

51: 1817-1880 (July 16) 1927

Heterotopic Endometrioid Proliferations. K. Heim.—p. 1818.
*Is Hysterography Dangerous? G. Haselhorst.—p. 1821.
*Dangers of Uterosalpingography. W. Odenthal.—p. 1824.
Tubal Sterilization. O. Planner.—p. 1829.
Hydrops Congenitus Universalis. S. Oberndorfer.—p. 1830.
Pathology of Umbilical Cord. H. Kunze.—p. 1832.
Genorrheal Ophthalmia Acquired in Intra-Uterine Life. K. O. Pohl.—p. 1838.
Surgical Treatment of Prolapse and Retroflexion. Von Holst.—p. 1843.
Pregnancy and Birth After Surgical Reinversion of Uterus. J. Miländer.—p. 1847.

Is Hysterography Without Danger?—Two cases of severe inflammation, with fever, following hysterography with iodized oil are reported by Haselhorst. Odenthal describes two further cases and warns that the patient should remain in bed as long as possible after the procedure. The method should, he says, be used only in cases of uncomplicated sterility, not for the diagnosis of tumor.

Nederlandsch Tijdschr. v. Geneeskunde, Amsterdam

71: 1-152 (July 2) 1927. Partial Index

*Abducens Paralysis in Acute Otitis Media. A. A. Boonacker and E. Huizinga.—p. 2.
Some Peculiarities of Dick Reaction. P. C. Gugelot.—p. 9.
Case of Situs Viscerum Inversus Completus. J. P. Veening.—p. 11.
Medical Journals of Holland from 1680 to 1857. C. C. Delprat.—p. 13. C'cn.
Hospital Conditions in "Good Old Times." G. Hellinga.—p. 97.

Abducens Paralysis in Acute Otitis Media.—Influenza appeared as a factor in most of the seven cases described by Boonacker and Huizinga. They do not believe that the paralysis in such cases is necessarily connected directly with the otitis media. One patient had paralysis of the peroneus also, and the abducens paralysis in this case was no doubt a sequel of polyneuritis. Abducens paralysis is not, in itself, they hold, an indication for a mastoid operation. That must depend on the course of the ear infection.

Finska Läkaresällskapets Handlingar, Helsingsfor

69: 563-651 (July) 1927

*Corpuscular Formations in Experimental and Epizootic Encephalitis. C. Kling.—p. 563.
*Intestinal Anastomoses and Exclusions. F. Langenskiöld.—p. 592.
Case of Alimentary Hypoglycemia. I. Schröder.—p. 605.
Saccharose Tolerance and Excretion in Urine in Children. O. Utter.—p. 613.

Corpuscular Formations in Experimental and Epizootic Encephalitis.—After a review of the literature on herpes-encephalitis virus (Levaditi-Harvier), and the so-called Swedish encephalitis virus, as well as on the organisms named *Encephalitozoon cuniculi*, Kling emphasizes that it is not possible, on morphologic grounds, to identify epizootic encephalitis in rabbits with the encephalitis produced by the inoculation of rabbits with human encephalitic material. Up to the present the human material subjected to examination has been obtained from relatively acute cases of the disease; only a few cases of chronic epidemic encephalitis have been examined carefully. Such cases should be examined with particular reference to the presence of corpuscular elements. The reaction to the virus of epidemic encephalitis, the cause of which is still unknown, may differ in the rabbit and in man.

Difficulties of Intestinal Anastomoses and Exclusions; Technic of Resection.—Langenskiöld concludes that in chronic obstruction in the intestine, the part of the intestine involved should be removed so far as possible. If removal is not possible, the intestine should be divided above the obstruction and both ends implanted in the intestine below the obstruction, with the oral or proximal stump lower than the distal stump. Under no circumstances should there be left long blind tubes in the direction of peristalsis. This method seems preferable to that of restoring the continuity of the intestine after resection by closing the stumps and establishing lateral anastomosis.

Hospitalstidende, Copenhagen

70: 577-600 (June 23) 1927

*Examination of Blood in Pulmonary Tuberculosis. A. Freudenthal.—p. 577.

Examination of Blood in Pulmonary Tuberculosis.—On the basis of observations made in 280 cases, Freudenthal says that normal sedimentation reaction after treatment of tuberculosis in the sanatorium seems to point to a comparatively good prognosis. He finds that comparison of the sedimentation reaction with the other clinical results will often aid in determination of activity, variety, and prognosis in pulmonary tuberculosis, indicate the efficacy of the treatment, and guide as to length of treatment. Tests on iso-agglutination in 294 patients (men) failed to show a relation between disposition to tuberculosis and the blood group.

70: 601-624 (June 30) 1927

*Malignant Tumors of Testes. O. Keller.—p. 601. C'td.
*Extent of Temporary Increase of Wassermann Reaction in Syphilis During Treatment. H. Haxthausen.—p. 616.

70: 625-652 (July 7) 1927

Malignant Tumors of Testes. O. Keller.—p. 625. C'cn.
Isolation, Sterilization and Need of Nourishment in Paramecia. K. M. Hansen.—p. 639. C'td.

70: 653-676 (July 14) 1927

Isolation, Sterilization and Need of Nourishment in Paramecia. K. M. Hansen.—p. 653. C'cn.

Malignant Tumors of Testes.—Keller reports on thirty cases of malignant tumor of the testes. In the cases with death after operative intervention, signs of metastases were observed at the latest one and a half years after treatment and death occurred at the latest three years after treatment. With tumors of usual type, he regards the absence of metastases for three years as synonymous with recovery. Castration resulted in recovery in 35.7 per cent of twenty-eight cases, as against from 5 to 25 per cent of recoveries elsewhere reported. He believes radical treatment would have given about 50 per cent of recoveries. Roentgen-ray and radium treatment he considers palliative.

Extent of Temporary Increase of Wassermann Reaction in Syphilis During Treatment.—Haxthausen's material comprised 340 cases not previously treated. The Wassermann reaction in primary uncomplicated syphilis was temporarily increased, due, he says, to the disease itself. In complications with venereal ulcer a decrease usually appeared, which he looks on as a sign of the influence that this lesion exerts on the development of syphilis. True increase in the Wassermann reaction due to treatment was indicated with certainty only in cases of gummatous syphilis. It was more doubtful in congenital syphilis. Indications of an increased Wassermann reaction because of treatment was not seen in other cases.

Hygiea, Stockholm

89: 497-544 (July 15) 1927

*Genius Epidemicus and Influenza in Stockholm. A. Magelssen.—p. 501.
*Results of Treatment of Chronic Arthritis. G. Kahlmeter.—p. 514.

Influenza in Stockholm.—By a system of temperature and mortality curves for the years from 1916 to 1921 Magelssen explains his contention that coincident and preliminary atmospheric conditions bear a definite relation to disease and

mortality, and that influenza is dependent on a combination of extremes of temperature within a period of two or three years. He considers influenza as a disturbance in the automatic vasomotor regulation of heat, with resulting symptoms and complications which include the development of various micro-organisms.

Results of Treatment of Chronic Arthritis is Sanatoriums.—Kahlmeter found that 62 per cent of 975 patients treated from 1915 to 1923 were capable of work in 1925. There were 224 women and 114 men with primarily chronic arthritis, forty-nine men and sixteen women had arthritis deformans, and 252 men and 336 women, infectious arthritis. In the infectious group, 85 per cent of the cases began before 40 years of age; in the primarily chronic cases, 56.8 per cent. Men improved more than women, especially in the primarily chronic group, and the younger patients more than the older, with no great difference up to 50 years. The best results were obtained in the cases with infectious arthritis. In this group the results were better when the disease began before the age of 40. The results of treatment were notably better in cases without pyorrhea. The shorter the duration of the disease and especially of incapacity for work, the better were the results in all three groups.

89: 545-576 (July 30) 1927

*Choleic Acid Enteroliths in Man. C. T. Mörner.—p. 545.
Infections with Anaerobic Gas Bacilli and Treatment with Antiserum. R. Bergman.—p. 557.

Choleic Acid Enteroliths in Man.—Mörner reports on two cases of choleic acid enteroliths, making in all, he says, five cases published (four from Sweden). Chemical tests of the enteroliths revealed that the total choleic acid content comprised about four fifths of the whole in the one and about one half in the other. The seat of origin seems to be limited to the small intestine, particularly its upper part.

Norsk Magazin for Lægevidenskapen, Oslo

88: 665-736 (Aug.) 1927

*Etiology and Pathogenesis of Rickets. T. Skaar.—p. 665.
*"Sanocrysin" in Experimental Tuberculosis in Rabbits. H. Bjørn-Hansen.—p. 681.
*Pericarditis Calculosa. J. Arnesen.—p. 688.
Specific Substances in Fetal Thyroid. A. Tanberg.—p. 692.

Etiology and Pathogenesis of Rickets.—Skaar gives a preliminary report on his experiments, continued for seventeen weeks, on the calcium and phosphorus metabolism in nine puppies. A diet consisting of 20 per cent of skimmed milk powder and 80 per cent of oatmeal was given. The clinical symptoms developed in from three to four weeks. The calcium content in the blood serum in the rachitic animals decreased 45 per cent; the phosphorus content, over 50 per cent. In two instances the animals received the same diet, with 3 cc. of lemon juice added in the second case; in the first the calcium balance was primarily affected; in the second, the phosphorus metabolism, indicating different rachitic processes. The administration of cod liver oil raised the calcium and phosphorus content of the blood serum to normal. The addition of 2 Gm. of sodium phosphate (Na_2HPO_4) to the diet in one case resulted in a highly aggravated pathologic condition. In another case, 2 Gm. of calcium lactate was added to the diet; in this case the symptoms of rickets were less marked. Changes in the thyroid gland were observed.

"Sanocrysin" in Experimental Tuberculosis in Rabbits.—In seventeen rabbits Bjørn-Hansen injected intravenously 0.0002 Gm. of bovine tubercle bacilli. Four untreated animals died in from thirty-four to forty-six days from marked general tuberculosis. One animal was killed the fourth day after infection. Injections of "sanocrysin" were given in eight cases on the fourth day and repeated every fourth or fifth day; in four cases treatment with "sanocrysin" was begun on the fourteenth day. Death occurred in twelve treated animals in from thirty-one to forty-five days. Macroscopic and microscopic examination of the control animals and of those treated with "sanocrysin" revealed the same picture of typical tuberculosis.

Pericarditis Calculosa.—Arnesen describes a case of typical calcified pericardium in a woman, aged 27, with history of purpura rheumatica followed not long after by ascites, and with a clinical picture marked by pronounced edema of the lower extremities and ascites, together with cyanosis of cheeks and lips and absence of edema in the upper extremities and head. He ascribes the ascites and edema to the pericarditis calculosa. Signs of tuberculosis were not found. The purpura rheumatica seems the most important etiologic factor in this case.

Ugeskrift for Læger, Copenhagen

89: 663-688 (July 28) 1927

Roentgen-Ray Diagnosis of Lesions of Vertebrae. H. Scheuermann.—p. 663.
Pathogenesis of Edema. P. Iversen and F. Nakazawa.—p. 670.
*Treatment with Metal Salts. L. E. Walbum.—p. 671. C'en.
*Splenomegaly Following Chronic Miliary Tuberculosis. T. Bjering.—p. 675.
*Periostitis of Heel. E. Husted.—p. 676.
Favorable Action of Intravenous Injection of Camphor in Rheumatic Fever. E. Thomsen.—p. 677.

Treatment with Metal Salts.—Walbum's treatment of mice infected with virulent tetanus spores by small optimal doses of manganese resulted in complete sterilization. Small optimal doses of manganese, lanthanum, cerium, or cadmium in rabbits infected intravenously with virulent tubercle bacilli gave complete protection against tuberculosis when the treatment was begun about the seventh day after infection. Rabbits infected intravenously with virulent tubercle bacilli recovered completely after treatment with small optimal doses of cadmium when the treatment was begun thirty-three days after infection. At the time the treatment with metal salts was commenced, some of the control animals died with advanced tuberculous changes in the internal organs. Treatment of guinea-pigs infected subcutaneously with virulent tubercle bacilli by small doses of cadmium failed to protect the animals against tuberculosis, but while the two control animals died of universal tuberculosis, in only one of the eight treated was the process so extensive and in seven the lungs did not macroscopically reveal tuberculosis. Small optimal doses of manganese in mice infected with virulent tuberculosis completely sterilized the animals.

Splenomegaly Following Chronic Miliary Tuberculosis.—Bjering describes a case in a woman, aged 29, with history of marked enlargement of the spleen as the only symptom for a year and a half. Splenectomy was followed by recovery. The spleen consisted largely of submiliary and even smaller typical tubercles. No evidences of tuberculosis in other organs was found until roentgenography revealed tuberculous processes in the lungs.

Periostitis of the Heel.—The determining factor in diagnosis of periostitis of the heel, Husted says, is a marked tenderness in the seat of attachment of the Achilles tendon to the heel. Treatment consists primarily in keeping the patient in bed until complete disappearance of the tenderness, usually from eight to ten days.

89: 689-708 (Aug. 4) 1927

*Nasal Polypi; Hyperplastic Ethmoiditis; Bronchial Asthma. A. Thornval.—p. 689.
*Cancer of Stomach in Early Life. M. C. Lottrup.—p. 693.
Counting of Cylinders in Counting Chamber. A. V. Neel.—p. 696.

Nasal Polypi; Hyperplastic Ethmoiditis; Bronchial Asthma.—A case of nasal polypi with bronchial asthma in a woman, aged 30, is described by Thornval. Nasal polypi he attributes to a chronic hyperplastic inflammation of the mucous membrane, particularly in the ethmoidal cells. He considers that the polypi and asthma have a common cause. In all cases tests of the cutaneous reaction with as many materials as possible are advised.

Cancer of Stomach in Early Life.—Lottrup reports two cases of cancer of the stomach in women, aged respectively 28 and 27, with early diagnosis of ulcer of the duodenum in the first case and ulcer of the lesser curvature in the second. He further describes a case in a man, aged 35, with diagnosis of stenosis of the pylorus; likewise a case in a woman, aged 32, diagnosed as subacute gastric dyspepsia. In all four cases the diagnosis of gastric cancer was made too late for operative treatment.